

Q.1 The parvocellular pathway from lateral geniculate nucleus to visual cortex is most sensitive for the stimulus of:

1. Color contrast.
2. Luminance contrast.
3. Temporal frequency.
4. Saccadic eye movements.

Answer Is 1

GANONG ,S REVIEW OF PHYSIOLOGY ED 19 Pg- 163

Q.2 The fibers from the contralateral nasal hemiretina project to the following layers of the lateral geniculate nucleus:

1. Layers 2, 3 & 5.
2. Layers 1, 2 & 6
3. Layers 1, 4 & 6
4. Layers 4, 5 & 6

Answer is 3

GANONG ,S REVIEW OF PHYSIOLOGY ED 19- 163

Q.3 All endothelial cells produce thrombomodulin except those found in:

1. Hepatic circulation.
2. Cutaneous circulation
3. Cerebral microcirculation.
4. Renal circulation.

Answer is 3

GANONG, S REVIEW OF PHYSIOLOGY ED 19 Pg- 546

Q.4 S.A. node acts as a pacemaker of the heart because of the fact that it:

1. Is capable of generating impulses spontaneously.
2. Has rich sympathetic innervations.
3. Has poor cholinergic innervations.
4. Generates impulses at the highest rate.

Answer is 4

GANONG, S REVIEW OF PHYSIOLOGY ED 19 Pg-549

Q.5 The first physiological response to high environmental temperature is:

- 1 Sweating
- 2 Vasodilation
- 3 Decreased heat production
- 4 Non-shivering thermogenesis

Answer is 2

GANONG ,S REVIEW OF PHYSIOLOGY ED 19 Pg-257, 599

Q.6 All of the following factors normally increase the length of the ventricular cardiac muscle fibres except:

1. Increased venous tone.
2. Increased total blood volume.
3. Increased negative intrathoracic pressure.
4. Lying-to-standing change in posture.

Answer is 4

Q.7 The vasodilatation produced by carbon dioxide is maximum in one of the following

1. Kidney
2. Brain

3. Liver.

4. Heart.

Answer is 2

GANONG ,S REVIEW OF PHYSIOLOGY ED 19 Pg-599

Q.8 Which one of the following statements regarding water reabsorption in the tubules?

1. The bulk of water reabsorption occurs secondary to Na<sup>+</sup> reabsorption.

2. Majority of facultative reabsorption occurs in proximal tubule.

3. Obligatory reabsorption is ADH dependent.

4. 20% of water is always reabsorbed irrespective of water balance.

Answer is 1

GANONG ,S REVIEW OF PHYSIOLOGY ED 19 Pg-717

Q.9 Urinary concentrating ability of the kidney is increased by:

1. ECF volume contraction.

2. Increase in RBF.

3. Reduction of medullary hyperosmolarity

4. Increase in GFR.

Answer is 1

GANONG ,S REVIEW OF PHYSIOLOGY ED 19 Pg-722

Q.10 Distribution of blood flow is mainly regulated by the:

1 Arteries

2 Arterioles

3 Capillaries

4 Venules

Answer is 2

GANONG ,S REVIEW OF PHYSIOLOGY ED 19 Pg-579

Blood flow in the vessels primarily due to pumping action of the heart

Other factors are diastolic recoil of walls of arteries, pumping action skeletal muscle on veins and negative intrathoracic pressure

Regulation of Blood flow to each tissue is depends on the diameter of the vessels principally of arterioles. Resistance to flow mostly depends on diameter of arterioles and to a minor degree on the viscosity of the blood. Arterioles are the major site of the resistance to blood flow and small change in their caliber causes large change in the total peripheral resistance.

Q.11 In which of the following a reduction in arterial oxygen tension occurs?

1. Anaemia.

2. CO poisoning.

3. Moderate exercise

4. Hypoventilation.

Answer is 3

Harrison priciple of internal medicine 15th ed/209,1502

PaO<sub>2</sub> is normal in

Anemic Hypoxia

Carbon Monoxide Intoxication

Histotoxic hypoxia

Anemic Hypoxia

There is Decline in the O<sub>2</sub>-carrying capacity of the blood.

In anemic hypoxia, the PaO<sub>2</sub> is normal

Carbon Monoxide Intoxication

Carbon monoxide preferentially displaces O<sub>2</sub> from hemoglobin, essentially making a portion of hemoglobin unavailable for binding to O<sub>2</sub>. In this circumstance, carbon monoxide saturation is high and O<sub>2</sub> saturation is low, even though the driving pressure for O<sub>2</sub> to bind to hemoglobin, reflected by PO<sub>2</sub>, is normal.

Respiratory Hypoxia ?The most common cause of respiratory hypoxia is ventilation-perfusion mismatch. It also caused by hypoventilation, and it is then associated with an elevation of PaCO<sub>2</sub> and low PaO<sub>2</sub>.

In moderate exercises? po<sub>2</sub> is decreased (ganong)

Q.12 Neuronal degeneration is seen in all of the following except:

1. Crush nerve injury
2. Fetal development.
3. Senescence
4. Neuropraxia.

Answer is 4

Apley,s orthopedics 8th ed/ 230

Maheshwari essential orthopedics 2nd ed/51 (table 10.1)

Neuropraxia- is a reversible physiological nerve conduction block in which spontaneous complete recovery occurs and there is no chances of degeneration.

Axonotmesis –degeneration occurs distal to the lesion and for a few mm retrograde. The axon disintegrates and is resorbed by phagocytes called WALLERIAN DEGENERATION.

In fetal development degeneration is by mechanism of apoptosis

In senescence nerve starts degenerate because of no use of nerve.

Q.13 With which one of the following Lower motor neuron lesions are associated?

1. Flaccid paralysis.
2. Hyperactive stretch reflex.
3. Spasticity.
4. Muscular in coordination.

Answer is 1

Harrison principle of internal medicine 15th Ed /134

Lower Motor Neuron Weakness

Lesion of ant. Horn cell or cranial nerve nuclei.

Flaccid weakness of muscle

Loss of deep tendon reflexes

Fasciculation of muscle fibers

Atrophy of muscle

Lesion of the cell bodies of brainstem motor cranial nerve nuclei and the anterior horn of the spinal cord. Or from dysfunction of the axons of these neurons as they reaches to skeletal muscle.

Spasticity	Upper motor neuron disease
Rigidity Lead pipe" or "plastic" stiffness Cogwheel	Extrapyramidal disorders Red nucleus Parkinson's disease
Paratonia (gegenhalten)	Disease of the frontal lobes
Flaccidity	Lower motor neuron lesion

Q.14 Aspermia is the term used to describe:

1. Absence of semen.
2. Absence of sperm in ejaculate.

3. Absence of sperm motility.
4. Occurrence of abnormal sperm.

Answer is 1

DORLAND DICTIONARY

ASPERMIA is absence of semen

AZOOSPERMIA mean absence of sperm

OLIGOZOOSPERMIA IS less than 20 million sperm per ml of semen.

Q.15 Which of the following statements can be regarded as primary action of Inhibin?

1. It inhibits secretion of prolactin.
2. It stimulates synthesis of estradiol
3. It stimulates secretion of TSH.
4. It inhibits secretion of FSH.

Answer is 4

Harrison priciple of internal medicine 15th ed /2157

GANONG REVIEW OF PHYSIOLOGY 19TH EDITION/127

Inhibin inhibits the release of FSH by the hypothalamic-pituitary unit.

Activin enhance FSH secretion as well as having local effects on ovarian steroidogenesis.

Follistatin attenuates the actions of Activin and other members of the transforming growth factor (TGF) family.

Q.16 A 40 year old male, with history of daily alcohol consumption for the last 7 years, is brought to the hospital emergency room with acute onset of seeing snakes all around him in the room, not recognizing family members, violent behavior and tremulousness for few hours. There is history of his having missed the alcohol drink since 2 days. Examination reveals increased blood pressure, tremors, increased psychomotor activity, fearful affect, hallucinatory behavior, disorientation, impaired judgement and insight. He is most likely to be suffering from:

1. Alcoholic hallucinosis.
2. Delirium tremens.
3. Wernicke encephalopathy.
4. Korsakoff's psychosis.

Answer is 2

Harrison priciple of internal medicine 15th ed/2565

All India repeat Q of 2003

When a chronic alcoholic stops taking alcohol then withdrawal symptoms generally begin within 5 to 10 h of decreasing ethanol intake, peak in intensity on day 2 or 3, and improve by day 4 or 5. Features include tremor of the hands (shakes or jitters); agitation and anxiety; autonomic nervous system over activity. The term delirium tremens (DTs) refers to delirium (mental confusion with fluctuating levels of consciousness) along with a tremor, severe agitation, and autonomic over activity). It is to be noted that only 5 to 10% of alcohol-dependent individuals ever experience DTs.

Q.17 A 45 year male with a history of alcohol dependence presents with confusion, nystagmus and ataxia. Examination reveals 6th cranial nerve weakness. He is most likely to be suffering from:

1. Korsakoff's psychosis.
2. Wernicke's encephalopathy.
3. De Clerambault syndrome.
4. Delirium tremens.

Answer is 2

Harrison principle of internal medicine 15th ed /2562

All India repeat Q of 2004

Wernicke's disease is a common and preventable disorder due to a deficiency of thiamine vitamin. Alcoholic's account for most of the cases of it. The characteristic clinical triad is that of ophthalmoplegia, ataxia, and global confusion. However, only one-third of patients of Wernicke's disease have this classic clinical triad.

Ocular motor abnormalities include horizontal nystagmus on lateral gaze, lateral rectus palsy (usually bilateral), conjugate gaze palsies, and rarely ptosis.

The pupils are usually spared, but they may become miotic with advanced disease.

Atrophy of the Mamillary bodies is seen in most chronic cases.

Q.18 A 25-year-old female presents with 2-year history of repetitive, irresistible thoughts of contamination with dirt associated with repetitive hand washing. She reports these thoughts to be her own and distressing; but is not able to overcome them along with medications. She is most likely to benefit from which of the following therapies:

1. Exposure and response prevention.
2. Systematic desensitization.
3. Assertiveness training.
4. Sensate focusing.

Answer is 1

New Oxford textbook of psychiatry 1st ed/827-828

Although it is a repeat question, many guides have been given the answer systemic desensitization. But according to Oxford "the behavioral therapy is as effective as pharmacotherapy in O.C.D.

Recently 2 neuroimaging studies found that patients with O.C.D., who are successfully treated with behavioral therapy show changes in cerebral metabolism similar to those found by successful treatment with S.S.R.I."

The principle behavioral approach in O.C.D. is exposure for obsession and response prevention for virtual.

Desensitization, thought stopping, flooding, implosion therapy and aversion conditioning have also been used in-patient with O.C.D.

Q.19 An 18-year-old boy came to the Psychiatry OPD with a complaint of feeling changed from inside. He described himself as feeling strange as if he is different from his normal self. He was very tense and anxious yet could not point out the precise change in him. This phenomenon is best called as:

1. Delusional mood.
2. Depersonalization.
3. Autochthonous delusion.
4. Overvalued idea.

Answer is 2

Neeraj Ahuja psychiatry 5th ed/113

Charlis G Morris psychology 10th ed/522

Essential feature of depersonalization is that person suddenly feels changed or different in a strange way. This kind of feeling is especially common during adolescence and young adult. E.g. A 20-year-old college student sought professional help experiencing episodes of feeling outside of himself for 2 yr. At these times he felt groggy, dizzy, and preoccupied.

Delusional mood and autochthonous delusion are the false belief as per definition, but this boy doesn't have false belief

Q.20 The major difference between typical and atypical antipsychotics is that:

1. The latter cause minimal or no increase in prolactin.

2. The former cause tardive dyskinesia.
3. The former area available as parenteral preparation.
4. The latter cause substantial sedation.

Answer is 2

K.D.T. Essential of pharmacology p396

Atypical anti psychotic

Clzapine	Tardive dyskinesia rase	Prolactin level
Resperidone	Tardive dyskinesia rase	prolaction level
Olanapine	Tardive dyskinesia rase	little in prolactin level

So main difference between typical and atypical antipsychotic is lack of Tardive dyskinesia in atypical antipsychotic.

Q.21 Dry mouth during antidepressant therapy is caused by blockade of:

1. Muscarinic acetylcholine receptors.
2. Serotonergic receptors.
3. Dopaminergic receptors.
4. GABA receptors.

Answer is 1

K.D.T. Essential of pharmacology p410

Anticholinergic side effect of antidepressant leads to dry mouth in the patients on these drugs.

Dry mouth is due to the Muscarinic acetylcholine receptor antagonism of these drugs.

Q.22 All of the following are hallucinogens, except:

1. LSD.
2. Phenylcyclidine.
3. Mescaline
4. Methylphenidate.

Answer is 4

Charlis G Morris psychology 10th ed/175

Hallucinogen

LSD

Mescaline

Psilocybin

Phenylcyclidine

Peyote

Phenylcyclidine is also known as angel dust. Methylphenidate is not a hallucinogen. It is a CNS stimulant and used in treatment of narcolepsy.

Q.23 An 18-year-old student complains of lack of interest in studies for last 6 months. He has frequent quarrels with his parents and has frequent headaches. The most appropriate clinical approach would be to:

1. Leave him as normal adolescent problem.
2. Rule out depression.
3. Rule out migraine.
4. Rule out an oppositional defiant disorder.

Answer is 1

Charlis G Morris psychology 10th ed/416

Adolescence is a period of storm and stress, fraught with suffering, passion, and rebellion against adult authority (so they may have frequent quarrels with his parents). Between 15-30% of adolescent student dropout of high school, many regularly abuse drugs. So the problem of in this q.

is a normal adolescent problem.

There is no sadness in mood. So it excludes depression

Frequent quarrels and loss of interest in studies only, exclude Migraine.

Oppositional defiant disorder- age group is 8-12 yr.

Q.24 Preservation is:

1. Persistent and inappropriate repetition of the same thoughts.
2. When a patient feels very distressed about it.
3. Characteristic of schizophrenia.
4. Characteristic of obsessive compulsive disorder (OCD)

Answer is 1

New oxford textbook of psychiatry 1st ed/63

Neeraj ahuja psychiatry 5th ed/13

Perservation is found in many organic mental disorders, it is not characteristic of schizophrenia.

It is defined as an inability to shift from one theme to another one. A thought is retained long after it has become inappropriate in the given context. For e.g. a patient may give a correct answer to the first question, but repeats the same response to a subsequently completely different question.

Q.25 One of the following usually differentiates hysterical symptoms from hypochondriacal symptoms:

1. Symptoms do not normally reflect understandable physiological or pathological mechanisms.
2. Physical symptoms are prominent which are not explained by organic factors.
3. Personality traits are significant.
4. Symptoms run a chronic course.

Answer is 1

Q.26 Which one of the following is the investigation of choice for evaluation of suspected Perthe's disease ?

- 1) Plain X-ray
- 2) Ultrasonography (US)
- 3) Computed Tomography (CT)
- 4) Magnetic Resonance Imaging.

Answer is 4 Dahmert Radiological review manual, 5th Ed, Pg-49

Haaga; CT/MRI of whole body

MRI is 90-100 sensitive and 85-90% specific for diagnosis of Perthe's disease and avascular necrosis (Haaga). MRI can detect the earliest changes in signal intensity of tissues. Edema seen as a high- signal- intensity (bright) on MRI T2 weighted image as earliest sign of inflammation.

So it is the investigation of choice in evaluation of suspected Perthe's disease

If Question were – Next step in evaluation of patient, or what will be the first investigation of choice? Then answer will be – Plain X-ray

PEARL POINTS about Legg-Calve-Perthe's disease- Coxa plana

-It is idiopathic avascular necrosis of femur head

-Only 10% cases are bilateral,

-M: F ratio - 5:1, but in bilateral cases M: F is 2:1

-When occur In adults it is called Chandler's disease

-Loss of "asterisk" sign – seen on CT/MRI

-Double line sign (in 80% of cases) seen on MRI

Q.27. Eisenmenger syndrome is characterized by all except:

1. Return of left ventricle and right ventricle to normal size.
2. Pulmonary veins not distended.

3. Pruning of peripheral pulmonary arteries.

4. Dilatation of central pulmonary arteries.

Answer is 1 Dahnert Radiological review manual, 5th Ed, Pg -627-628

CXR findings of Eisenmenger syndrome

- Pronounced dilatation of central pulmonary arteries
- Pruning of peripheral pulmonary arteries
- Enlarged RV+ RA
- Return of LA +LV to normal size
- Normal pulmonary vein
- No redistribution of pulmonary vein (normal venous pressure).

Q.28 In which one of the following conditions the Sialography is contraindicated?

1. Ductal calculus.
2. Chronic parotitis
3. Acute parotitis
4. Recurrent sialadenitis.

Answer is 3 LB 24TH/728

Mumps is the most common cause of acute painfull parotid swelling,that predominantly affect the children.acute bacterial parotitis is most commonly caused by staph. Aureus. Sialography is absolutely contraindicated in acute infection.

Q.29 The most common site of leak in CSF rhinorrhea is:

1. Sphenoid sinus.
2. Frontal sinus.
3. Cribriform plate.
4. Tegmen tympani.

Answer is 3 Snell's clinical anatomy 7th Ed, Pg-802

Harrison principle of internal medicine 15th Ed

Cribriform plate of the ethmoid bone may be damaged in the fractures of ant. cranial fossa. The patient will be having epistaxis and CSF rhinorrhea. CSF may also leak through the adjacent sinus. Persistent rhinorrhea and recurrent meningitis are indications for surgical repair of torn dura and underlying fracture.

Pearl points about head injury. (Bailey and love's 24th ed/596)

Glial and macrophage reactions begin within 2 days after brain contusion and result in scarred, hemosiderin-stained depressions on the surface (plaques jaunes) after years. Those are one source of posttraumatic epilepsy that occurs after years of the head injury.

Administration of prophylactic antibiotic in fracture base of skull gives no benefit.

Even it can increase morbidity and mortality.

Dexamethasone having controversial role in treating raised I.C.T. in-patient of head injury. But it has a definite role in raised ICT due to other reason.

Fluid leaking from nose and ear should be screened for ?-transferrin (tau protein) to confirm the CSF.

Fresh blood clot and coagulopathic proteins gives mixed density on CT called SWIRL sign

Blow out fracture is fracture of orbital floor gives TEAR DROP sign on CT.

Q.30 Which of the following is the most common renal cystic disease in infants is?

1. Polycystic kidney.
2. Simple renal cyst.
3. Unilateral renal dysplasia.



4. Calyceal cyst.

Answer is 3

Current pediatric diagnosis and treatment, 11th Ed, Pg-15;

Dahnert Radiological review, 5th Ed, Pg-928-929

-Most abdominal masses in the newborn are associated with the kidneys (multicystic dysplastic kidney, hydronephrosis, etc)

-MCDK –is Potter type II cyst

-It is second most common cause of an abdominal mass in neonate (after hydronephrosis)

-It is most common form of cystic disease in infants

- U/L MCDK is the most common form of multicystic dysplastic kidney (80-90%). Lt: Rt ratio 2:1

-Nuclear studies (99m-Tc MAG3) preferred over IVP for evaluation of the function of kidneys, because in first month of life the concentrating ability of even normal neonatal kidneys is suboptimal.

Q.31 The most common type of total anomalous pulmonary venous connection is:

1. Supracardiac.

2. Infracardiac

3. Mixed.

4. Cardiac.

Answer is 1

Ref- C.P.D.T; 11Ed / 557

Dahnert Radiological review, 5th Ed, Pg-603

TAPVC –It is classified according to the site of entry of pulmonary vein into the right of the heart

Type 1 – (55%) entry into left SVC or Rt SVC (Supracardiac)

Type 2 - entry into Rt atrium or coronary (cardiac)

Type 3 - entry in portal vein (Infracardiac)

Type 4 – mixed

Q.32 Which one of the following is the most common location of hypertensive bleed in the brain?

1. Putamen/external capsule.

2. Pons.

3. Ventricles.

4. Lobar white matter.

Answer is 1 Harrison principle of internal medicine 15th ed/2386

Intraparenchymal hemorrhage is most common type of intracranial hemorrhage. Hypertension, trauma, and cerebral amyloid angiopathy are among the imp. causes. Advanced age and heavy alcohol consumption also increase the risk. Cocaine use is one of the most important causes of it in the young adults.

The most common sites of Intraparenchymal bleed are the basal ganglia (Putamen, thalamus, and adjacent deep white matter), deep cerebellum, and Pons. The Putamen is the most common site for hypertensive hemorrhage

Q.33 Which one of the following is the most preferred route to perform cerebral angiography?

1) Transfemoral route

2) Transmaxillary route

3) Direct Carotid Puncture

4) Transbranchial route.

Grainger and Allison's Diagnostic Radiology 4th ed./150

Harrison internal medicine 15th ed/.

It is possible to opacify arteries in many areas of the body using a direct percutaneous needle puncture.

The common carotid and vertebral arteries can be punctured in the neck using an anterior approach to obtain arteriograms of the carotid and vertebrobasilar systems; the subclavian, axillary or brachial arteries can be punctured for upper limb arteriography, the abdominal aorta (high or low) for lumbar, pelvic and leg arteriography; and the femoral artery for single leg studies. But now Percutaneous studies in the head and neck and upper limb have been largely supplanted by the transfemoral catheter method.

Grainger and Allison Diagnostic Radiology 4th ed.  
Harrison internal medicine 15th ed/.

Q.34 Which one of the following soft tissue sarcomas frequently metastasizes to lymph nodes?

1. Fibrosarcoma.
2. Osteosarcoma.
3. Embryonal Rhabdomyosarcoma.
4. Alveolar soft part sarcoma.

Answer is 3

Harrison principle of internal medicine 15th ed/626

Sarcomas tend to metastasize through the blood rather than the lymphatic system; lymph node metastases occur in 5% of cases.

Exceptions are

- Synovial and epithelioid sarcomas,
- Clear-cell sarcoma (melanoma of the soft parts),
- Angiosarcoma, and
- Rhabdomyosarcoma

Where nodal spread may be seen in 17%

The pulmonary parenchyma is the most common site of metastases in sarcomas. Exceptions are

Leiomyosarcomas of GIT	Liver
Myxoid liposarcomas	Seek fatty tissue
Clear-cell sarcomas	Bones
Alveolar soft part sarcoma	CNS

The histological grade is the most important prognostic factors OF SARCOMAS.

In the treatment of sarcomas Doxorubicin (Adriamycin is trade name) -based chemotherapy is favored (as in Leiomyosarcomas).

Q.35 Which one of the following radioisotope is not used as permanent implant?

1. Iodine-125
2. Palladium-103.
3. Gold-198.
4. Caesium-137.

Regional therapy of advanced carrier, Michael T. Lutze. Joshua T. Rubin. 1st ed/184.

R.C.S. Pointon, The Radiotherapy of malignant Disease 2nd ed/7.

Radioisotopes used, as permanent implant is known as brachytherapy.

Brachytherapy sources. Some of these radionuclides, e.g. radium-226, are accompanied by an equilibrium amount of one or more radioactive daughter products, which have different half-lives and emit different radiations.

Radionuclide	Radiation emitted	Half-life
Radium-226	Gamma rays	Gamma rays
Caesium-137	Gamma rays	30 years
Cobalt-60	Gamma rays	5.26 years
Indium-192	Gamma rays	74 days
Gold-198	Gamma rays	2.7 days
Strontium-90	Beta rays	28.1 years
Yttrium-90	Beta rays	64 hours

- Caesium 137 source are now more commonly used.
- Gold 198 is used for Permanent gold seed implant.
- Stronum 90 - Bone
- Yitrium 90 - Pituitary gland
- Iodine 125 - CNS metastasis (RUBIN)

Q.36 Which one of the following tumors shows calcification on CT scan?

1. Ependymoma
2. Meduloblastoma.
3. Meningioma.
4. CNS lymphoma.

Answer is 3

Dahnert; Radiological review manual 5th Ed /299

CT findings of Meningioma—

1. Sharply demarcated well circumscribed slowly growing mass
2. Wide attachment to adjacent dura mater
3. Cortical buckling of underlying brain
4. Hyperdense (70-75% due to psammomatous calcification) lesion on NECT
5. Calcification as circular/radial pattern seen on CT in 20-25% cases
6. Hyperostosis of adjacent bone (in 18%)

MRI findings—	Angiography –mother in law phenomenon
1 Dural tail sign in 60 % of cases	1 Sunburst or spoke-wheel pattern of vascularity,
2 Hypervascularity	2 Early draining vein

Fine punctuate multifocal calcification occurs in 25- 50% of Ependymoma. But these are not clearly evident on CT scan.

D / D of suprasellar mass with calcification

- Craniopharyngioma (90% have calcification)
- Meningioma (25 % calcified as seen on CT)
- Granuloma
- Dermoid / Teratoma
- Rarely hypothalamic Glioma or Optic Glioma

Q.37 The technique employed in radiotherapy to counteract the effect of tumor motion due to breathing is known as:

1. Arc technique.
2. Modulation.
3. Gating.
4. Shunting.

Answer is 3 Grainger and Allison's, diagnostic radiology 4th ed/143 Gated imaging

When any motion of body produces disturbance and motion related artifact in images in Radiology or during radiotherapy, then gating is done to reduce the motion related artifacts.

If cardiac motion - ECG gating done

If respiratory motion - Diaphragmatic gating done.

Q.38 In which of the following diseases, the overall survival is increased by screening procedure?

1 Prostate cancer.

2 Lung cancer.

3 Colon cancer.

4 Ovarian cancer.

Answer is 3

Harrison principle of internal medicine 15th ed/501

Widespread screening for breast, cervical, and colon cancer is beneficial for certain age groups

<b>Breast Cancer</b> Annual or biennial screening with mammography or mammography plus clinical breast examination in women over the age of 50 saves lives.	Lung Cancer Screening→ <b>chest radiographs and sputum cytology has been evaluated as methods for lung cancer screening. No reduction in lung cancer mortality has been found</b>
<b>Colorectal Cancer</b> → Annual fecal occult blood testing using hydrated specimens could reduce colorectal cancer mortality by a third. Two case-control studies suggest that regular screening of people over 50 with sigmoidoscopy decreases mortality.	<b>Cervical Cancer</b> Screening with Papanicolaou smears decreases cervical cancer mortality. Guidelines recommend regular Pap testing for all women who are sexually active or have reached the age of 18. The recommended interval for Pap screening varies from 1 to 3 years

Q.39 Gamma camera in Nuclear Medicine is used for:

1 Organ imaging.

2 Measuring the radioactivity.

3 Monitoring the surface contamination.

4 RIA.

Answer is 2 Walter – Miller, Textbook of Radiotherapy; Pg -112

Grainger and Allison diagnostic radiology 4th Ed/141

Gamma camera is the devices used to observe the distribution of an isotope in an organ, or in a part of the body. It receives the gamma ray photons from patient through a grid of thousands of holes drilled parallel to each other. Gamma camera measures the radioactivity in body then forms a image  
GAMMA CAMERA IS Used for detection of radioactivity IN BODY. The M/C used detector is scintillation detector.

Scintillators - when these are struck by a photon of X-ray or gamma ray they scintillate (released as a flash of light). In gamma camera - Scintillator used is made upto NaI crystal.

Q.40 At  $t=0$  there are  $6 \times 10^{23}$  radioactive atoms of a substance, which decay with a disintegration constant ( $\lambda$ ) equal to 0.01/sec. What would be the initial decay rate?

1  $6 \times 10^{23}$

2  $6 \times 10^{22}$

3 6x10<sup>21</sup>

4 6x10<sup>20</sup>

Answer is 3

Grainger and Allison's. Diagnostic radiology 4th ed/140.

Radioactive decay -

$$\lambda = \frac{-dN}{dt} \quad 1$$

$\lambda$  = is decay constant

$\frac{dN}{dt}$

= is decay rate. It dt = is from starting (dt = T<sub>2</sub> - T<sub>1</sub>)

dt it T<sub>1</sub> is 0 than dt = t

When T<sub>1</sub> is 0 - it is called initial decay  $\frac{dN}{dt}$  = is called initial decay rate.

$$\begin{aligned} \text{So initial decay rate } dN &= -\lambda XN = .001 \times 6 \times 10^{23} \\ &= 10^{-2} \times 6 \times 10^{23} \\ &= 6 \times 10^{21} \text{ is the answer} \\ \text{- Initial decay rate} &= \text{radioactive atoms initially} \times \text{disintegration constant} \\ &= 6 \times 10^{(23)} \times .01 \\ &= 6 \times 10^{(21)} \end{aligned}$$

Q.41 An 18-year-old boy comes to the eye casualty with history of injury with a tennis ball. On examination there is no perforation but there is hyphaema. The most likely source of the blood is  
1 Iris vessels.

2 Circulus iridis major.

3 Circulus iridis minor.

4 Short posterior ciliary vessels.

Answer is 2 Parson disease of eye 19th ed/16,407

Circulus Arteriosus major situated along the base of iris in the ciliary body.

Circulus arteriosus minor along papillary margin

A concussion injury to iris, especially angle resection leads to hemorrhage in the ant.

Chamber called hyphaema.

Q.42 A 25-year-old male gives history of sudden painless loss of vision in one eye for the past 2 weeks. There is no history of trauma. On examination the anterior segment is normal but there is no fundal glow. Which one of the following is the most likely cause?

1 Vitreous haemorrhage.

2 Optic atrophy.

3 Developmental cataract.

4 Acute attack of angle closure glaucoma.

Answer is 1

Parson disease of eye 19th ed/360

A. K. Khurana ophthalmology 2nd ed/11

Optic atrophy	Painless but gradual loss of vision
Developmental cataract	Painless but gradual loss of vision
Acute attack of angle closure glaucoma	Painful, sudden loss of vision

Vitreous hemorrhage	Painless, sudden onset fall in vision

Q.43 The mother of a one and a half year old child gives history of a white reflex from one eye for the past 1 month. On computed tomography scan of the orbit there is calcification seen within the globe. The most likely diagnosis is:

- 1 Congenital cataract.
- 2 Retinoblastoma.
- 3 Endophthalmitis.
- 4 Coats of disease.

Answer is 2  
Wolfgang Dahnert Radiology Review Manual 5th ed/345  
Kanski's Clinical Ophthalmology Pg-338.

- Leukocoria (white papillary reflex) is most common sign (in about 60% of cases).
- Strabismus - 2nd most common sign (20% of cases).
- Anterior segment invasion by Retinoblastoma is a rare presentation, if it occurs, is seen in older children with an average age > 6 yrs.
- Metastasis seen to the regional lymph nodes and brain.
- USG detect the presence of calcification at calculates tumor dimension
- CT can also detect calcification; also detect gross involvement of optic nerve, orbital and CNS extension.
- MRI is more useful for optic nerve evaluation.

Q.44 Enlarged corneal nerves may be seen in all of the following except:

- 1 Keratoconus.
- 2 Herpes simplex keratitis.
- 3 Leprosy.
- 4 Neurofibromatosis.

Answer Is 2  
Ref. Grayson's Diseases of the Cornea, 4th Ed pg-50

Corneal nerves may be seen in normal eyes as fine branching white lines. That originates at the limbus in the mid stroma and become more anterior centrally. Corneal nerves are visualized more clearly when they are thickened.

- Causes of thickened corneal nerves are -  
Fuch's dystrophy  
Keratoconus  
Neurofibromatosis  
Refsum's disease  
Ichthyosis  
Leprosy  
Congenital glaucoma  
Multiple Endocrine neoplasia  
Use of Cannabis Sativa  
Aging

Q.45 Under the WHO 'Vision 2020' programme, the 'SAFE' strategy is adopted for which of the following diseases?

- 1 Trachoma.
- 2 Glaucoma.
- 3 Diabetic retinopathy.
- 4 Onchocerciasis.

Answer is 1 (trachoma)  
 WHO MANNUAL OF OPHTH.  
 It is a repeat question  
 GET 2020 (global elimination of glaucoma) was launched under leadership of W.H.O. in 1997.  
 Through this the primary health care approaches are based on evidence based SAFE strategy.  
 S surgery  
 A antibiotic  
 F facial cleanness  
 E environmental changes

Q.46 Type I hypersensitivity is mediated by which of the following immunoglobulins?  
 1 Ig A.  
 2 Ig G.  
 3 Ig M.  
 4 Ig E.  
 Answer is 4 H15TH /1827

Type I Immediate Reaction Hypersensitivity  
 1 First exposure sensitizes host  
 2 Macrophages and B cells present epitopes to Th2 cells, which produce interleukin (IL)-4  
 3 IL-4 causes class switch to Ig E  
 4 Mast cells and basophils bind Ig E to high-affinity receptors  
 5 Ig E cross-linking initiates granule release  
 These granules contain histamine, heparin, and proteases that induce edema, increased mucus secretion, and smooth muscle contraction; this is the immediate reaction that occurs

Q.47 Horner's syndrome is characterized by all of the following except:  
 1 Miosis.  
 2 Enophthalmos  
 3 Ptosis.  
 4 Cycloplegia  
 Answer is 4 H15TH/564  
 Harrison principle of internal medicine 15th ed/564

Sympathetic nerve paralysis leads to Horner's syndrome (enophthalmos, ptosis, miosis, and ipsilateral loss of sweating and loss of ciliospinal reflex). Triad of Horner's syndrome? miosis with ipsilateral ptosis and anhidrosis constitutes Horner's syndrome, although anhidrosis is an inconstant feature. Two other features are loss of ciliospinal reflex and enophthalmos. But these don't constitute the part of triad. Cycloplegia is not a feature of it.

Q.48 The superior oblique muscle is supplied by:  
 1 3rd cranial nerve.  
 2 4th cranial nerve.  
 3 5th cranial nerve.  
 4 6th cranial nerve.  
 Answer is 2  
 Harrison principle of internal medicine 15th ed/176  
 Trochlear Nerve

The fourth cranial nerve originates in the midbrain, just caudal to the oculomotor Nerve complex. Only nerve that exit the brainstem dorsally and cross to innervate the Contralateral superior oblique.  
 The principal actions of this muscle are to depress and to intort the globe. Palsy

Therefore results in hypertropia and excyclotorsion. "Head tilt test" is a cardinal diagnostic feature.

Note? Trochlear nerve is longest intracranial nerve. While 10th nerve is longest cranial nerve. Abducent is not the longest intracranial nerve but it is most common nerve involved in raised I.C.T. and gives pseudolocalising sign (Dutta's anatomy).

Q.49 Which of the following statement is true regarding Acanthamoeba keratitis?

- 1 For the isolation of the causative agent, corneal scraping should be cultured on a nutrient agar plate.
- 2 The causative agent, Acanthamoeba is a helminth whose normal habitat is soil.
- 3 Keratitis due to Acanthamoeba is not seen in the immunocompromised host.
- 4 Acanthamoeba does not depend upon a human host for the completion of its life cycle.

Answer is 4  
Harrison principle of internal medicine 15th ed/1202

Free-living amebas are Acanthamoeba, Naegleria, and Balamuthia are distributed throughout the world and have been isolated from a wide variety of fresh and brackish water. They don't need of a human host for the completion of its life cycle.

Risk factors for their infection

Lymphoproliferative disorders Glucocorticoid therapy <b>AIDS</b> Wearing of lenses while swimming	Chemotherapy Lupus erythematosus Use of homemade saline Inadequate disinfections.
--	--

PEARL POINTS

Culture is done on nonnutrient agar plates seeded with Escherichia coli. Fluorescein-labeled antiserum is available for the detection of protozoa in biopsy specimens. Examination of the cerebrospinal fluid for trophozoites may be diagnostically helpful, but lumbar puncture may be contraindicated because of increased intracerebral pressure. The persistence of Legionella pneumophila in water supplies may be attributable to chronic infection of these amebas, particularly Naegleria. The characteristic clinical sign is an annular, Para central corneal ring representing a corneal abscess.

Q.50 A 30-year-old man has 6/5 vision each eye, unaided. His cycloplegic retinoscopy is +1.0 D sph. at 1 meter distance. His complaints are blurring of newsprint at 30 cm. that clears up in about two minutes. The most probable diagnosis is:

- 1 Hypermetropia.
- 2 Presbyopia.
- 3 Accommodative inertia.
- 4 Cycloplegia.

Answer is 3

Gunter K. Von Noorden, Binocular vision and ocular mortality 6th ed/86.

- A blurred retinal image is the stimulus to accommodation. Then accommodation starts and completed with in few seconds. In accommodation inertia - accommodation is slow to come in action but Person ultimately accommodates, it takes few minutes to fully accommodate.
- Accommodation is of the reciprocal of the Fixation distance. Thus if fixation distance is 1 met - accommodation is 1 D.



If 1/2 meter - 2D.  
 If 1/3 meter - 3D.

Q.51 Contact lens wear is proven to have deleterious effects on the corneal physiology which of the following statements is incorrect in connection with contact lens wear?

- 1 The level of glucose availability in the corneal epithelium is reduced.
- 2 There is a reduction in hemidesmosome density.
- 3 There is increased production of CO<sub>2</sub> in the epithelium.
- 4 There is a reduction in glucose utilization by corneal epithelium

Answer is 4  
 Grayson Disease of Cornea 4th ed./25.

Effect of contact lens wear on epithelial metabolism.

A. Normal state. Most of the oxygen diffuses through the tears from the atmosphere; glucose is supplied by the aqueous humor; carbon dioxide is released into the atmosphere; lactate diffuses into the aqueous humor.

B, During polymethylmethacrylate lens wear, oxygen supply and carbon dioxide release are impaired and must occur through passage of tears beneath the lens. As a result of hypoxia, glucose demand and lactate production are increased.

C, During hydrophilic contact lens wear, oxygen supply is improved because some oxygen can pass through the lens, but glucose demand and lactate production are increased moderately.

D, With highly oxygen-permeable rigid contact lenses, oxygen supply, glucose demand, and lactate production are near normal.

1) During hypoxia.

Glucose utilization by anaerobiosis (so increased utilization because of block in kreb,s cycle.)

lactate accumulate and it increases osmotic solute load

It leads to stromal edema and reduction in hemidesmosome activity.

Q.52 Lumbar sympathectomy is of value in the management of:

- 1 Intermittent claudication.
- 2 Distal ischemia affecting the skin of the toes.
- 3 Arteriovenous Fistula.
- 4 Back pain.

Answer is 2

H. George Burkitt /Clive RG Quick, Essential surgery, problem, diagnosis and management 3rd ed/459

- Blood flow in skin is controlled by sympathetic nervous system but not in muscle (specially during exercise). Claudication is due to muscle ischemia during exercise while rest pain is due to skin ischemia. So rest pain in skin may sometime be relieved by sympathetic blockade but claudication is never relieved. So claudication is contraindication for the Sympathectomy
- Sympathectomy is of no value in intermittent claudication, as it does not influence muscle blood flow. It is successful in early rest pain. It may also be helpful in healing ulcer where moderate ischemia is present in combination with some other factor such as chronic venous insufficiency.

PEARLS POINTS

- Lumbar sympathectomy done with extraperitoneal approach.
- Chemical sympathectomy done with 6% aqueous phenol.
- Medical sympathectomy - Methyl Dopa.

1 Intermittent claudication is contraindication for sympathectomy,

2 Rest pain is an indication

3 A.V fistula treated with surgery. no role of sympathectomy is there

4 Back pain (radicular nerve block can be done), so pain relieved

5 Sympathectomy –dilatation of arteries occur- so effective in distal ischemia affecting the skin & toes

Indication of sympathectomy

1. Rest pain

2. Causalgia

3. Hyperhidrosis

4. Definite treatment of congenital prolonged QT syndrome

Q.53 A blood stained discharge from the nipple indicates one of the following:

1 Breast abscess.

2 Fibroadenoma.

3 Duct Papilloma.

4 Fat Necrosis of Breast.

Answer is 3

LB 24TH/828 Essential surgery/3rd Ed

Nipple discharge

Milky	Pregnancy or hyperprolactinaemia
Clear	Physiological
Green	Perimenopausal, duct ectasia, fibroadenotic cyst
Blood-stained	Possible carcinoma or intraduct papilloma.

Recent inversionSuggests a fibrosing underlying lesion such as carcinoma or mammary duct ectasis.

‘ Eczema’ (rash involving nipple or areola, or both)if unilateral, this is the classic sign of Paget’s disease of the nipple, a presentation of breast cancer.

Duct papillomas benign hyperplastic lesions rather than neoplasms and are not premalignant. Duct papillomas present with nipple bleeding or a blood-stained discharge. The differential diagnosis thus includes intraduct carcinoma and infiltrating carcinoma which must be excluded. Ductography may confirm the presence of a duct Papilloma (Fig. 39.23). Duct papillomas are usually treated by surgical excision of the affected segment of breast (microdocheotomy). The affected segment is identified during operation by passing a probe into the duct from where blood can be expressed.

Q.54 The earliest manifestation of increased intracranial pressure following head injury is:

a. Ipsilateral papillary dilation.

b. Contralateral papillary dilatation.

c. Altered mental status.

d. Hemiparesis.

Answer is 3

Bailey and love’s 24th ed/610

Essential surgery 3RD ED /pg 138

These finding are in serial events of manifestation of raised intracranial tension

Observation	Observation
Conscious level (Glasgow come Falling score scale)	Dilatation, loss of light reaction or developing asymmetry

Pupil size and light response	Irregularity, slowing or reduced depth of breathing.
Respiratory pattern and rate	Focal signs point to localized intracranial damage. Falling
Developing neurological signs	pulse rate (late sign)
Pulse rate	Rising blood pressure (late sign)
Blood pressure	

Q.55 In which of the following conditions Splenectomy is not useful?

- 1 Hereditary spherocytosis.
- 2 Porphyria.
- 3 Thalassemia.
- 4 Sickle cell disease with large spleen.

Answer is 2

Harrison principle of internal medicine 15th ed/670,672,673

#### HEREDITARY SPHEROCYTOSIS

The major clinical features of hereditary spherocytosis are anemia, splenomegaly, and jaundice. Splenectomy reliably corrects the anemia, although the RBC defect and its consequent morphology persist. The operative risk is low. RBC survival after Splenectomy is normal or nearly normal. It should be noted that Cholecystectomy should not be performed without Splenectomy in any patient of hemolytic anemia, as intrahepatic gallstones may result.

Splenectomy in children should be postponed until age 4, if possible, to minimize the risk of severe infections with gram-positive encapsulated organisms. Polyvalent pneumococcal vaccine should be administered at least 2 weeks before splenectomy.

#### THALLESIMIA

In-patient of thallessimia Splenectomy is required if the annual transfusion requirement, volume of RBCs per kilogram body weight per year increases by 50%.

#### SICKLE CELL ANEMIA

In sickle cell anemia repeated microinfarction in tissues occur due to sickling. Thus, the spleen is frequently infarcted within the first 18 to 36 months of life called autosplenectomy, causing susceptibility to infection, particularly from pneumococci. Acute venous obstruction of the spleen (splenic sequestration crisis leads to congestive splenomegaly), a rare occurrence in early childhood, may require emergency transfusion and/or splenectomy to prevent trapping of the entire arterial output in the obstructed spleen.

Q.56 The following is ideal for the treatment with injection of sclerosing agents.

- 1 External hemorrhoids.
- 2 Internal hemorrhoids.
- 3 Prolapsed hemorrhoids.
- 4 Strangulated hemorrhoids.

Answer is 2

CMDT2004/619,

Bailey and Love's Surgery 24th ed/1257.

There is 3 degree of hemorrhoids according to position.

Ist degree	Bleed only, not prolapsed (internal)
2 <sup>nd</sup> degree	Prolapsed but will reduce spontaneously or can be reduced digitally and will remain reduced
3 <sup>rd</sup> degree	Continuously remain prolapsed.
Stage I & II	Injection sclerotherapy or rubber banding

Stage III	Hemorrhoidectomy.

Material commonly used of injection sclerotherapy is – Phenol, Almond oil, Iodoquinone, Acetic acid cannot be used because it is a very weak sclerosing agent.

2 <sup>nd</sup> degree is further divided in	Stage II - spontaneously reduced  Stage III -IS manually reduced.
--	---

Q.57 In which of the following locations. Carcinoid tumor is most common?

- 1 Esophagus.
- 2 Stomach.
- 3 Small bowel.
- 4 Appendix.

Answer is 4

According to Harrison the ileum is the most common site of carcinoid. But all other books (Robbins 7th ed, Schwartz surgery, Dahnert radiology, Margulis gastrointestinal radiology, Sabiston surgery, Devita, s cancers, CSDT etc.) still say that Appendix is the most common site for carcinoid. So in my opinion answer will be appendix.

Q.58 Pancreatitis, pituitary tumor and phaeochromocytoma may be associated with:

- 1 Medullary carcinoma of thyroid.
- 2 Papillary carcinoma of thyroid.
- 3 Anaplastic carcinoma of thyroid.
- 4 Follicular carcinoma of thyroid.

Answer is 1

Harrison principle of internal medicine 15th ed/2185

MEN 1 Wermer's syndrome	Parathyroid adenoma Pituitary Pancreatic islet cells tumors (Gastrinoma)
MEN 2A Sipple syndrome	MTC Parathyroid adenoma Phaeochromocytoma
MEN 2B Mucosal Neuroma syndrome	Phaeochromocytoma Mucosal Neuroma Intestinal ganglioneuromatosis Marfanoid features

Only thyroid tumor associated with MEN syndrome is MTC (Medullary carcinoma of thyroid.)

MEN1 gene, located on chromosome 11q13,

Mutations of the - RET proto-oncogene have been identified in 93 to 95% of patients with MEN 2, but it is located on 10th chromosome.

Q.59 Gardner's syndrome is a rare hereditary disorder involving the colon. It is characterized by:

- 1 Polyposis colon, cancer thyroid, skin tumors.
- 2 Polyposis in jejunum, pituitary adenoma and skin tumors.
- 3 Polyposis colon, osteomas, epidermal inclusion cysts and fibrous tumors in the skin.
- 4 Polyposis of gastrointestinal tract, cholangiocarcinoma and skin tumors.

Answer is 3

Harrison principle of internal medicine 15th ed/583

<b>Gardner's syndrome.</b>	Osteomas, Epidermal inclusion cyst, Retinal freckle, Mesenteric Desmoid Ampullary cancers, Polyposis coli
<b>Turcot's syndrome.</b>	CNS Glioma, Polyposis coli

Q.60 The most common cancer, affecting Indian urban women in Delhi, Mumbai and Chennai, is:

- 1 Cervical Cancer.
- 2 Ovarian Cancer.
- 3 Breast cancer.
- 4 Uterine Cancer.

Answer is 3

- K. Purk P.S.M, 17th ed/PG.287, Table 2.

- Overall M/C Cancer in India is C.A. Cervix.
- M/C Cancer of rural area - C.A. cervix.
- M/C cancer in Urban area - C.A. Breast.
- M/C Cancer of male in India - of C.A. of orodigestive tract.
- In Delhi and Mumbai - C.A. Breast is most common cancer

Q.61 All of the following are true for patients of ulcerative colitis associated with primary sclerosing cholangitis (PSC), except:

- 1 They may develop biliary cirrhosis.
- 2 May have raised alkaline phosphatase.
- 3 Increased risk of hilar cholangiocarcinoma.
- 4 PSC reverts after a total colectomy.

Answer is 4

CMDT 2004/604 Robbins 7th Ed /915 Harrison 16th Ed /1784

Primary sclerosing cholangitis (PSC) is characterized by both intrahepatic and extra hepatic bile duct inflammation and fibrosis, frequently leading to secondary biliary cirrhosis and hepatic failure. About 1 to 5% of patients with IBD have PSC, but 50 to 75% of patients with PSC have IBD. It can be recognized after the diagnosis of IBD and PSC can be detected earlier or even years after proctocolectomy. During acute attack patients have raised level of alkaline phosphatase. Patients with this entity are at higher risk of developing cholangiocarcinoma.

Important point about ulcerative colitis in contrast with Crohn's disease –

- 1 Risk of carcinoma is significantly higher in U.C. than C.D.
- 2 Toxic megacolon develops in < 2% of cases of U.C., it can also occur in C.D.
- 3 Steroid is not used as a maintenance therapy in the treatment of U.C.
- 4 P-ANCA -ve and ASCA +ve has a 95% positive predictive value and 92% specificity for diagnosis of C.D.
- 5 P-ANCA +ve and ASCA -ve has a 88% PPV and 98% specificity for diagnosis of U.C.

Q.62 Which one of the following is not a feature of liver histology in non-cirrhotic portal fibrosis

(NCPF)?

- 1 Fibrosis in and around the portal tracts.
- 2 Thrombosis of the medium and small portal vein branches.
- 3 Non specific inflammatory cell infiltrates in the portal tracts.
- 4 Bridging fibrosis.

Answer is 4

Schiff's Diseases of liver 8th ed/406

Robbins pathology / Anderson's pathology

Dahnert Radiological review manual 5th ed/682

BANTI syndrome = NON CIRRHOTIC PORTAL FIBROSIS = Hepatorenal

Sclerosis = Idiopathic portal HTN.

It is characterized by splenomegaly, hypersplenism; portal HTN, but there is no feature of cirrhosis and of liver failure. So there are absence of Ascites, encephalopathy, other signs of liver failure and Bridging fibrosis, which is the characteristic histological finding of cirrhotic liver. So the Complication of disease well tolerated and is not associated with the dismal prognosis of variceal bleeding in cirrhotic patient. It is characterized by gastro esophageal variceal hemorrhage in a young patient with prominent splenomegaly.

POSTULATED ETIOLOGIES –

<b>Arsenic</b> exposure Ch. bacterial infection	Malaria Immunologic derangements Genetic predisposition
--	---

HISTOPATHOLOGY –

- Main lesion described as an obliterative portal venopathy of liver' with patchy Segmental sub endothelial thickening of intrahepatic portal veins.
- Thrombus formation with variable obliteration or recanalization.
- Scarring and fibrosis of portal tract.
- Fibrosis prominent in extra hepatic portal vein and its intrahepatic branches.
- Liver surface may appears nodular but it is never cirrhotic
- Widening and fibrosis of space of disse
- Capillarization of sinusoids
- Non-specific inflammatory cell in portal tracts leads to fibrotic reaction.
- NCPF Common in India + Japan.
- Male predominance seen with mean age 25-35 yr
- Difference in Japanese and Indian -
  - All patient has increase portal and splenic pressure. Japanese have elevated hepatovenous portal gradient (HVPG), while Indian may have normal or increase HVPG
  - Japanese are likely to have 10-20 yr older and shows female predominance.
- Imaging modality of choice - splenoportography with help of Doppler (Doppler flowmetry).
- Best investigation is - liver biopsy.

Q.63 The most common complication seen in hiatus hernia is:

- 1 Oesophagitis.
- 2 Aspiration pneumonitis.
- 3 Volvulus.
- 4 Esophageal stricture.

Answer is 1

Robbins Pathologic basis of disease 7ED/802

Dahnert Radiological review manual 5th ed/p 832.

Reflux Oesophagitis is frequently seen in association with sliding hernias

## Association of Hiatus hernia

Reflux Oesophagitis (25%) Diverticulosis (25%)	Duodenal ulcer (20%) Gall stones (18%).
---	--

Q.64 Patients of Rectovaginal fistula should be initially treated with:

- 1 Colostomy.
- 2 Primary repair.
- 3 Colporrhaphy.
- 4 Anterior resection.

Answer is 2

Maggot's Abdominal Surgery Ed. /p.2147-49

Prior to surgery of Rectovaginal fistula, a complete 3-day mechanical and antibiotic bowel preparation should be performed and colon must be completely emptied, cleansed and sterilized prior to surgery. When all signs of infection have resolved, no evidence of fistulitis is there, and fresh granulation tissue is present, the primary repair can be performed.

Even in recurrent fistulas or fistulas after pelvic irradiation, they recommend a Martius graft technique for repair. So even in recurrent condition they does not perform the colostomy initially.

Whether or not to perform a diverting colostomy? There Preference is not to perform a colostomy in individuals undergoing their first repair with a Martius graft.

- Colporrhaphy done in prolapsed uterus
- Anterior resection done in C.A. rectum.

Q.65 A young woman met with an accident and had mild quadriparesis. Her lateral X-ray cervical spine revealed C5-C6 fracture dislocation. Which of the following is the best line of management?

- 1 Immediate anterior decompression.
- 2 Cervical traction followed by instrument fixation.
- 3 Hard cervical collar and bed rest.
- 4 Cervical laminectomy.

Answer is 2

Chapman's Orthopedic Surgery 3rd ed/3699

Apley's Orthopedics 8th ed/654

Maheshwari Orthopedics

TREATMENT of Fracture dislocation at lower cervical spine (below C3 spine)

- The displacement must be reduced as a matter of urgency.
- Skull traction is used, it is started with 5 kg and increasing it step wise by similar amount up to 30 kg.
- If closed treatment with traction up to 2/3 of body weight or 65 pounds (Whichever is less) is unable to achieve adequate reduction, operative intervention is required.
- If reduction fails - Posterior open reduction and fusion is done.

Q.66 Which of the following catheter materials is most suited for long-term use is?

- 1 Latex.
- 2 Silicone.
- 3 Rubber.
- 4 Polyurethane.

Answer is 2

Essential surgery, problems, diagnosis and management H. George

Burkitt/Clive R.G. Quick 3rd ed/393

With either type of catheterization (urethral or suprapubic), the major problems are catheter blockage and infection. Catheter rapidly becomes blocked by epithelial debris or by gradual

accretion of calculus. Modern silicone or silicone - coated 'long term' catheters are better in this respect but must also be changed regularly (every 3 month's 10-12 wks).

Q.67 The main site of bicarbonate reabsorption is:

- 1 Proximal convoluted tubule.
- 2 Distal convoluted tubule.
- 3 Cortical collecting duct.
- 4 Medullary collecting duct.

Answer is 1

Harrison principle of internal medicine 16th ed/1641

Also see Q 8

Reclamation of filtered  $\text{HCO}_3^-$  takes place largely in the proximal tubule (80-90%) and, under normal circumstances, is virtually complete below a critical plasma  $\text{HCO}_3^-$  concentration. The threshold concentration, which is normally about 26 m mol/L, in human, is identical to the concentration of  $\text{HCO}_3^-$  in plasma. As a consequence,  $\text{HCO}_3^-$  wastage is totally prevented normally.

Q.68 Which of the following is the most troublesome source of bleeding during a radical retro pubic prostatectomy?

- 1 Dorsal venous complex.
- 2 Inferior vesical pedicle.
- 3 Superior vesical pedicle.
- 4 Seminal vesicular artery.

Answer is 1

Glenn's Urologic surgery 5th ed/277

Michael J. Drdler, Surgical management of urological disease, An anatomic approach 1st ed/PG 654.

There are two dorsal venous plexus around the prostate. Superficial dorsal vein is divided and then sutured directly. But the deep dorsal vein complex runs parallel to the urethra at the apex of prostate and then fans out over the anterior of prostate. We feel that it is important to control these vessels preemptively rather than simply to incise them and place sutures afterward.

A Mc- -Dougal clamp is useful for this purpose.

Santorini's plexus provides the major source of venous drainage of the prostate. This plexus lies on the anterior surface of the prostate in the puboprostatic space. The deep dorsal vein of the penis and its tributaries are the major contributors to the plexus. During retropubic prostatectomy this vessel should be controlled separately (1) before capsulotomy in cases of simple retropubic procedures and (2) before opening endopelvic fascia and dividing puboprostatic ligaments in cases of radical prostatectomy.

Q.69 The most common cause of renal scarring in a 3 year old child is:

- 1 Trauma.
- 2 Tuberculosis.
- 3 Vesicoureteral reflux induced pyelonephritis.
- 4 Interstitial nephritis.

Answer is 3

Dahnert radiological review manual 5th ed/p 983, 946

VESICOURETERIC REFLUX - (Congenital reflux = Primary reflux)

9-10% of normal Caucasian babies

1.4% of schoolgirls

30% of children with a first episode of UTI

Reflux nephropathy also called chronic atrophic pyelonephritis. It leads to the scarring of kidney.



Scar formation occurs only up to age 4 years. Vesicoureteral reflux induced Pyelonephritis is most common cause of renal scarring in children.

Q.70 The most sensitive imaging modality for diagnosing ureteric stones in a patient with acute colic is:

- 1 X-ray KUB region
- 2 Ultra sonogram
- 3 non-contrasts CT scan of the abdomen.
- 4 Contrast enhanced CT scan of the abdomen.

Answer is 3

Dahnert Radiological review manual 5th ed/P 981-982

M/c type of calculus is Calcium stone

	M/c	type	of	calculus	is	Calcium	stone
			Calcium	stone		-	75%
			Struvite	stone		-	15%
			Calcium	phosphate		-	5%
All	are	radioopaque		Uric acid		-	5%
			Cystine	-			1%
		Radiolucent		stone		-Uric	acid
							Xanthine
		Matrix stone					

Q.71 Which one of the following is not used as tumor marker in testicular tumors?

- 1 AFP.
- 2 LDH.
- 3 HCG.
- 4 CEA.

Answer is 4

Bailey and love's surgery 23rd ed/1280

Harrison principle of internal medicine 15th ed/chapter 90

The serum lactate dehydrogenase (LDH) level serves as an additional marker of all GCTs of testis, but it is not as specific as either AFP or HCG. LDH levels are increased in 50 to 60% patients with metastatic nonseminoma and in up to 80% of patients with advanced seminoma.

While plasma carcinoembryonic antigen (CEA) level predicts eventual tumor recurrence in colonic carcinoma.

Q.72 Which one of the following is the common cause of congenital Hydrocephalus is?

- 1 Craniosynostosis.
- 2 Intra uterine meningitis
- 3 Aqueductal stenosis
- 4 Malformations of great vein of Galen.

Answer is 3

Dahnert radiological review manual 5th edi/291

Congenital Hydrocephalus

- 1- M/c cause is aqueduct stenosis (43%)
- 2- 2nd commonest is communicating hydrocephalus (38%).
- 3- On USG assessment is difficult prior to 20 wks GA, as ventricles ordinarily Constitutes a large portion of cranial vault.
- 4- On USG - dangling choroid plexus sign is seen.
- 5- CAUSES OF INFANTILE HYDROCEPHALUS –

<ul style="list-style-type: none"> <li>• Aqueductal stenosis</li> <li>• Vein of Galen aneurysm</li> <li>• Post infectious</li> <li>• Superior vena cava obstruction</li> <li>• Chiari II malformation</li> </ul>	<ul style="list-style-type: none"> <li>• Dandy - Walker syndrome</li> <li>• Tumor</li> <li>• Hemorrhage</li> <li>• Choroid plexus Papilloma</li> </ul>
--	--

Q.73 In a child, non-functioning kidney is best diagnosed by:

- 1 Ultrasonography.
- 2 IVU.
- 3 DTPA Renogram.
- 4 Creatinine clearance.

Answer is 3

Grainger and Allinson, Diagnostic Radiology 3rd ed/115

Urinary Tract imaging in Pediatrics age group

A two-part evaluation of the kidney is now commonplace; renal morphology is assessed with ultrasound and renal function by radionuclide study. Both congenital and acquired conditions may result in reduced renal function, and radionuclide imaging is superior to excretory urography in providing information. In the neonatal period, this conjoint imaging technique is excellent in evaluating cystic dysplastic conditions, obstructive uropathies, and renovascular disturbances. Renal scintigraphy and ultrasonography complement each other.

Renal function and the status of the collecting system can be assessed by agents which are filtered by the glomeruli-like radiographic contrast media -  $^{99m}\text{Tc}$  diethylene-triaminepentaacetic acid (DTPA) - or secreted by the renal tubules - iodine-131 ( $^{131}\text{I}$ -) labelled ortho-iodohippurate (OIH),  $^{99m}\text{Tc}$  mercaptoacetyltriglycine (MAG3). An agent which binds in the cortex is used to assess functioning renal parenchyma:  $^{99m}\text{Tc}$  dimercaptosuccinic acid (DMSA). By combining features of both the above groups,  $^{99m}\text{Tc}$  glycoheptonate (GH) is partially cleared by filtration (85%) and partially bound to proximal renal tubules (15%).

Q.74 The most common malignant neoplasm of infancy is:

- 1 Malignant Teratoma.
- 2 Neuroblastoma.
- 3 Wilms' tumor.
- 4 Hepatoblastoma.

Answer is 2

Dahnert radiological review manual 5th ed/932-933

Grainger and Allinson, diagnostic radiology, 5th ed/1757

Neuroblastoma is the most common solid abdominal mass of infancy (12.3% of all perinatal neoplasm). It constitutes 3rd M/C malignant tumor of infancy (after leukemia > CNS tumor). But Neuroblastoma is 2nd M/C tumor of childhood (Wilms tumor is first)

- Site of metastasis in Neuroblastoma - bone (60%) > L.N. (42%) > orbit > liver (15%) < intracranial.

- Syndrome associated with metastasis of neuroblastoma -

- 1) Hutchinson syndrome
- 2) Pepper syndrome
- 3) Blueberry muffin syndrome.

Q.75 The most common presentation of a child with Wilm's tumor is:

- 1 An asymptomatic abdominal mass.
- 2 Hematuria.
- 3 Hypertension.
- 4 Hemoptysis due to pulmonary secondary.

Answer is 1

Grainger and Allinson, diagnostic radiology, 5th ed/1760

Dahnert radiological review manual 5th ed/984-85

-Wilm's tumor - (Nephroblastoma)

<p>- Clinical presentation</p> <p>Asymptomatic palpable abdominal mass (90%)</p> <p>HTN in 25% due to rennin</p> <p>Pain abdomen (25%)</p> <p>Low-grade fever (15%)</p>	<p>- Rules of 10's</p> <p>10% Unfavorable histology</p> <p>10% Bilateral invasion</p> <p>10% Calcification at presentation</p> <p>10% Pulmonary metastasis</p>
---	--

10% tumor is - pheochromocytoma

10% rule is also seen in Craniopharyngioma of brain.

PEARL POINTS

- D/d from Neuroblastoma is very imp. Note that in Neuroblastoma there is Encasement/elevation of aorta while Wilms tumor have invasion properly.
- Neuroblastoma shows stippled regular calcification while curvilinear Calcification is seen in Wilm's tumor.

Q.76 The laryngeal mask airway used for securing the airway of a patient in all of the following conditions except:

- 1 In a difficult intubation.
- 2 In cardiopulmonary resuscitation.
- 3 In a child undergoing an elective routine eye surgery.
- 4 In a patient with a large tumor in the oral cavity.

Answer is 4

Clinical anesthesiology Lange - Appleton 3rd/P-65

The laryngeal mask airway provides an alternative to ventilation through a Face mask or ETT.

Contraindication to LMA

- Patient with pharyngeal pathology (e.g. abscess)
- Patient with pharyngeal obstruction. (Large tumor)
- Full stomach (e.g. pregnancy, hiatus hernia)
- Low pulmonary compliance (e.g. obesity) requiring peak inspiratory Pressure greater than 20 cm H<sub>2</sub>O.

Q.77 The following are used for treatment of postoperative nausea and vomiting following squint surgery in children except:

- 1 Ketamine.
- 2 Ondansetron.
- 3 Propofol.
- 6 Dexamethasone.

Lange clinical anaesthesiology 3rd Ed, pg-940

Postoperative nausea & vomiting

- 1) Increased incidence of nausea has been reported with -

. following opioids . N2O anaesthesia  
. after laparoscopy . after strabismus surgery

2) Highest incidence appears to be in young women, studies suggest that nausea is more common during menstruation.

3) Propofol anaesthesia decreases the incidence of postoperative nausea and vomiting.

4) Intravenous droperidol and metoclopramide also decreases postoperative nausea.

5) Drugs used in postoperative nausea.

- 5HT<sub>3</sub> antagonists (ondansetron, granisetron and dolasetron) are extremely effective. No dystonia and No dysphoria occur with use of these agent.
- Ondansetron may be more effective than other agent in children.
- Dexamethasone when combined with another antiemetic is especially effective for refractory nausea and vomiting.
- Low dose propofol has been reported to be effective for postoperative nausea and vomiting.

Q.78 Which one of the following anaesthetic agents causes a rise in the Intracranial pressure:

1 Sevoflurane.

2 Thiopentone sodium.

3 Lignocaine.

4 Propofol.

Lange clinical anaesthesiology 3rd Ed, pg-145

Answer is (1) Sevoflurane -

- Similar to isoflurane and desflurane, sevoflurane causes slight increase in cerebral blood flow and intracranial pressure at normo carbia.
- High concentration of Sevoflurane (> 1.5 MAC) may impair autoregulation of C.B.LF. and thus allowing a drop in C.B.F. during ihemorrhagic hypotension. This effect on CBF is less pronounced than isoflurane.
- Property of sevoflurane -. non purgent and rapid increase in alveolar anesthetic concentration make seroflurane an excellent choice for smooth and rapid inhalation induction in pediatric or adult patient.
- Contraindication of seroflurane are  
1) Severe hypovolemia 2) Susceptibility to malignant hyperthermia 3) intracranial hypertension.

Q.79 The following modes of ventilation may be used for weaning off patients from mechanical ventilation except:

1 Controlled Mechanical ventilation (CMV).

2 Synchronized intermittent mandatory ventilation (SIMV).

3 Pressure support ventilation (PSV).

4 Assist - control ventilation (ACV).

Lange clinical anaesthesiology 3rd Ed, pg-962

Points about Ventilatory modes -

CMV - Controlled mode ventilation

AC - Assist control.

IMV - Intermittent mandatory ventilation

SIMV - Synchronized intermittent mandatory ventilation.

PSV - Pressure support ventilation

PCV - Pressure Control Ventilation

MMV - Mandatory minute ventilation

IRV - Inverse I:E ratio ventilation

APRV - Airway pressure release ventilation

HFJV - High frequency jet ventilation.

The modes that don't allow spontaneous ventilation

CMV  
PCV  
PC-IRV

The weaning modes are

IMV  
SIMV  
PSV

AC can also be used during weaning but CMV is never used as weaning mode.

Q.80 The most common pathogens responsible for nosocomial pneumonias in the ICU are:

- 1 Gram positive organisms.
- 2 Gram negative organisms.
- 3 Mycoplasma.
- 4 Virus infections.

Lange clinical anaesthesiology 3rd Ed, pg-981

Nosocomial pneumonias are usually caused by gram negative organisms, and are leading cause of death in many ICUs

→ GI bacterial overgrowth

↓

Translocation into the portal circulation

↓

Retrograde colonization of the upper airways from GI tract

↓

Aspiration

→ Most nosocomial infection arise from endogenous bacterial flora

→ Urinary tract accounts for upto 35-40% of nosocomial infection

→ Urinary inf are usually due gram negative bacteria and associated with indwelling catheter

→ Wound inf are 2nd most common cause, 25-30%

→ Pneumonia accounts for another, 20-25%

→ Intravascular catheter inf are responsible for 5-10% of ICU inf

Hence the answer is 2

Q.81 A Lower Segment Caesarean Section (LSCS) can be carried out under all the following techniques of anaesthesia except:

- 1 General anaesthesia.
- 2 Spinal anaesthesia.
- 3 Caudal anaesthesia.
- 4 Combined Spinal Epidural anaesthesia.

Lange clinical anaesthesiology 3rd Ed, p-828.

Anaesthesia for cesarean section-

-80% are performed under regional anaesthesia

40% spinal

40% epidural

-Epidural anaesthesia is preferred over spinal anaesthesia because of more gradual decrease in B.P.

-Continuous epidural anaesthesia also allows better control the sensory level.

-CSE anaesthesia – it is called combined spinal epidural anaesthesia.

It combines benefit of both type of anaesthesia.

1. rapid and reliable and intense block of spinal anaesthesia.

2. flexibility of epidural catheter.

-Advantage of general anaesthesia.

1. rapid, reliable.
2. control of airway & ventilation.
3. potentially less hypotension.

Important facts:

1. Cesarean section requires a T4 sensory level.
2. Measures to prevent hypotension during spinal anaesthesia.
  - 1500-2000 ml bolus of Ringer lactate injection prior to block (crystalloid are not effective).
  - phenylephrine if hypotension occurs.
  - ephedrine prior to block.
  - trendelenberg position
3. Epidural anaesthesia is most satisfactory when an epidural catheter is used.
4. Epidural morphine, 5mg, at the end of surgery provides good to excellent pain relief post-operatively.

Q.82 The most appropriate circuit for ventilating a spontaneously breathing infant during anaesthesia is:

- e. Jackson Rees' modification of Ayres' T Piece.
- f. Mapleson A or Magill's circuit.
- g. Mapleson C or Waters' to and fro canister.
- h. Bains circuit.

Lange clinical anaesthesiology 3rd Ed, pg

Q.83 The abnormal preoperative pulmonary function test in a patient with severe kyphoscoliosis includes:

- i. Increased RV/TLC.
- j. Reduced FEV1/FVC
- k. Reduced FEV25-75
- l. Increased FRC.
- m.

Q. 84 Which one of the following drugs has been shown to offer protection from gastric aspiration syndrome in a patient with symptoms of reflux?

- 1 Ondansetron.
- 2 Metoclopramide.
- 3 Sodium citrate.
- 4 Atropine.

Lange clinical anaesthesiology 3rd Ed, p830

Prophylaxis against aspiration pneumonia:

1. 30 ml of .3M sodium citrate 30-445 min prior to induction given routinely.
2. Patient with risk factors like morbid obesity, gastro-esophageal reflux, potentially difficult airway, emergent delivery should also receive Ranitidine and/or Metoclopramide.
3. High risk patient- 40mg omeprazole in night is most effective.
4. anticholinergic like Glycopyrrolate (.1mg) reduce the risk of aspiration only theoretically.

Q.85 Which one of the following is true of adrenal suppression due to steroid therapy?

- 1 It is not associated with atrophy of the adrenal glands.
- 2 It does not occur in patients receiving inhaled steroids.
- 3 It should be expected in anyone receiving > 5 mg. Prednisolone Daily
- 4 Following cessation, the stress response normalizes after 8 weeks.

Answer is 3

Q.86 The carpal tunnel contains all of the following important structures except:

- 1 Median Nerve.
- 2 Flexor pollicis longus.
- 3 Flexor carpi radialis.
- 4 Flexor digitorum superficialis.

Answer is 3

B. D. Chaurasia vol. ii 3rd Ed pg-99

Q.87 The femoral ring is bounded by the following structures except:

- 1 Femoral vein
- 2 Inguinal ligament.
- 3 Femoral artery.
- 4 Lacunars ligament.

Answer is 3

B. D. Chaurasia vol. ii 3rd Ed pg-44-45

Femoral vein makes the lateral wall of femoral ring. Femoral artery lies lateral to the femoral vein so how can it make boundary of femoral ring.

B. D. Chaurasia vol. ii 3rd Ed pg-44-45

Q.88 All of the following statements regarding vas deference are true except:

- 1 The terminal part is dilated to form ampulla.
- 2 It crosses ureter in the region of Ischial spine.
- 3 It passes lateral to inferior epigastric artery at deep inguinal ring.
- 4 It is separated from the base of bladder by the peritoneum.

Answer is 4

B. D. Chaurasia vol. ii 3rd Ed pg-325 -327

The base of bladder is not covered by the peritoneum so how can it separate the ureter from the base of bladder by the peritoneum.

Q.89 The following statements concerning chorda tympani nerve are true except that it:

- 1 Carries secretomotor fibers to submandibular gland.
- 2 Joins lingual nerve in infratemporal fossa.
- 3 Is a branch of facial nerve.
- 4 Contains postganglionic parasympathetic fibers.

Answer is 4

B. D. Chaurasia vol. III 3rd Ed pg-113

It Carries secretomotor fibers to submandibular gland, which are preganglionic parasympathetic fibers not postganglionic parasympathetic

It should be noted that any major nerve in body cannot Contains postganglionic parasympathetic fibers. Because parasympathetic ganglia lie in the effector organ itself, so how is it possible?

Q.90 A woman with infertility receives an ovary transplant from her sister who is an identical Twin.

What type of graft it is?

- 1 Xenograft.
- 2 Autograft.
- 3 Allograft.
- 4 Isograft.

Answer is 4

Panikar microbiology PG 164

#### **TYPES OF GRAFTS**

Allograft:	Transplant from one individual to another with a different genetic make- up, within the same species, e.g. kidney transplant from one person to any other (except an identical twin).
Isograft or Syngeneic graft	Transplant between genetically identical, monozygotic twins, or between members of an inbred strain of animals.
Autograft	Transplant from one site to another on the same individual, e.g. transplanting a blood vessel from the leg to the heart during cardiac bypass surgery. This type of transplant does not require immunosuppressive therapy.
Xenograft	Transplant across species barriers, e.g., transplanting a heart from a baboon to a human. Have a very poor prognosis because of the presence of cross-species reactive antibodies that will induce hyperacute rejection.

Q.91 The type of joint between the sacrum and the coccyx is a:

- 1 Symphysis.
- 2 Synostosis.
- 3 Synchondrosis.
- 4 Syndesmosis.

Answer is 1

Q.92 The Prostatic urethra is characterized by all of the following features, except that it:

- 1 It is the widest and most dilatable part
- 2 Presents a concavity posteriorly
- 3 Lies closer to anterior surface of prostate.
- 4 Receives Prostatic ductules along its posterior wall.

Answer is 2

B.D. Chaurasia Vol. 2/Page 308

Moore & Dalley, Clinically oriented anatomy 4th Ed Pg –363

#### PROSTATIC URETHRA

- 1 Semi-lunar on transverse section with its convexity directed forwards.
- 2 Widest and most dilatable part of the male urethra.
- 3 Receive Prostatic ductules along its posterior wall.
- 4 Forms a gentle curve, that is concave anteriorly
- 5 Lies closer to anterior surface of prostate.
- 6 Prostatic sinuses lies on side of Prostatic utricle and each sinus Presents the opening of about 20-30 Prostatic glands
- 7 Slit like opening of ejaculatory duct on or just within the orifice to the Prostatic utricle
  - The membranous part is star shaped (stellate) and it is least dilatable part of the male urethra.
  - The spongy part is in the form of a transverse slit.
  - External urethral orifice is in the form of a vertical slit.

Q.93 All of the following areas are commonly involved sites in pelvic fracture except:



- 1 Pubic rami.
- 2 Alae of ileum.
- 3 Acetabula.
- 4 Ischial tuberosities.

Answer is 4

Moore & Dalley Clinically oriented anatomy 4th Ed PG –338

Pelvic fractures can result from - direct trauma to the pelvic bones as in automobile accidents or caused by forces transmitted to these bones from the lower limbs during fall on feet The areas of fractures in ? ing order of frequency are

- 1 Pubic rami
- 2 Acetabula (or the area immediately surrounding them)
- 3 Region of sacroiliac joint
- 4 Alae of ileum

These are the weak areas of the pelvis

Q.94 The following group of lymph nodes receives lymphatics from the uterus except:

- 1 External iliac.
- 2 Internal iliac.
- 3 Superficial inguinal.
- 4 Deep inguinal.

Answer is 4

B.D. Chaurasia Vol. II page 319.

**Lymphatic drainage of uterus –**

Fundus and upper part of body	Aortic nodes partly to the superficial inguinal nodes along the round ligament of the uterus
Cervix	- External iliac, internal iliac and sacral nodes.
Middle lymphatics and lower part	External iliac nodes

Q.95 All of the following physiological processes occur during the growth at the epiphyseal plate except:

- 1 Proliferation and hypertrophy.
- 2 Calcification and ossification.
- 3 Vasculogenesis and erosion.
- 4 Replacement of red bone marrow with yellow marrow.

Answer is 4

Tortora & Grabowski, Principles of Anatomy & Physiology 9th Ed, Pg 168-170

The epiphyseal plate is a layer of hyaline cartilage in the metaphysis of a growing bone that consists of four zones

Resting Zone	No function in bone growth, they anchor the epiphyseal plate to the bone of epiphysis
Proliferating Zone	The chondrocytes divide to replace those that die at the

	diaphyseal side of epiphyseal plate
Hypertrophic Zone	The chondrocytes are even larger. The lengthening of the diaphysis is the result of cell division in the zone of proliferating cartilage and the maturation of the cells in the zone of Hypertrophic cartilage
Calcified Zone	Consists mostly of dead chondrocytes because the matrix around them has calcified. This calcified cartilage is dissolved by osteoclastic erosion and increased vascularisation. This area is invaded by osteoblasts and capillaries from the diaphysis

Q.96 Benign Prostatic hypertrophy results in obstruction of the urinary tract. The specific condition is associated with enlargement of the:

- 1 Entire prostate gland.
- 2 Lateral lobes.
- 3 Median lobe.
- 4 Posterior lobes.

Answer is 3

Moore & Dalley Clinically oriented anatomy 4th Ed Pg-369

Middle lobe (median lobe) often enlarges in the most peoples and obstructs the internal urethral orifice; the more the Person strains, the more the Prostate occlude the urethra enlargement of this lobe give rise to symptom of bladder outflow obstruction even in absence of Prostatic enlargement.

Q.97 In an adult male, on per rectal examination, the following structures can be felt anteriorly except:

- 1 Internal iliac lymph nodes.
- 2 Bulb of the penis.
- 3 Prostate.
- 4 Seminal vesicle when enlarged.

Answer is 1

Moore & Daley's Clinically Oriented Anatomy 4th Ed, Pg-388

Many structures related to the antero-inferior part of the rectum may be palpated through its walls on per rectal examination. These are-

- Prostate & seminal vesicles in males
- Cervix in females
- In both sexes, pelvic surface of sacrum & coccyx, Ischial space & tuberosities may also be palpated
- Bulb of penis specially when urethra is catheterized.
- Enlarged internal iliac LN felt on lateral wall, pathological thickening of the Ureters swelling in ischio-rectal fossa, or ischio-rectal abscess and abnormal contents in recto-vesical pouch in male & recto-uterine pouch in females
- Tenderness of inflamed appendix can also be detected per rectally in case of pelvic appendix.

Q.98 While doing thoracocentesis, it is advisable to introduce needle along:

- 1 Upper border of the rib.
- 2 lower border of the rib.
- 3 In the center of the inter-costal space.

4 In anterior part of inter-costal space.

Answer is 1

Clinically oriented anatomy Keith L. Moore 4th edi/87.

In Thoracocentesis, to avoid damage to the inter-costal nerve and vessels, the needle is inserted superior to the rib, in plane of mid axillary's line, High enough to avoid the collateral branches. It is not inserted along lower border of rib because neuro-vascular bundle lies there.

#### TRIANGLE OF SAFETY

Anterior border of latissimus dorsi

The posterior border of the Pectoralis major and

The superior border of the fifth rib

Q.99. Virus mediated transfer of host DNA from one cell to another is known as:

1. Transduction.
2. Transformation.
3. Transcription.
4. Integration.

Answer is 1

Panikar microbiology 6th Ed PG 51-53

Harrison principle of internal medicine 15th ed/ chapter 69 Table 69-3

Two major classes of vectors are used for transferring nucleic acids into cells for the purposes of gene therapy: viral and non-viral vectors. Viral vectors have been genetically engineered so that the viruses transfer exogenous (therapeutic) nucleic acids into cells through a process called transduction.

Q.100 Barr body is found in the following phase of the cell cycle:

1. Interphase.
2. Metaphase.
3. GI phase
4. Telophase.

Answer is 1

Q.101 The type of hemoglobin that has least affinity for 2,3-Diphosphoglycerate (2,3-DPG) or (2,3-BPG) is:

- 1.Hg A.
- 2.Hg F.
- 3.Hg B.
- 4.Hg A<sub>2</sub>.

Answer is 2

Lippincott illustrated Biochemistry/pg 33.

Under physiologic conditions, HbF has a higher affinity for oxygen than does HbA, owing to HbF's binding only weakly to 2,3-BPG. (Note: The  $\gamma$ -globin chains of HbF lack some of the positively charged amino acids found in the  $\psi$ -globin chains that are responsible for binding 2,3-BPG].

Because 2,3-BPG serves to reduce the affinity of hemoglobin for oxygen, the weaker interaction between 2,3-BPG and HbF results in a higher oxygen affinity for HbF relative to HbA

Form	Chain composition	Fraction of Total hemoglobin
HbA	$\alpha_2\beta_2$	90%
HbF	$\alpha_2\gamma_2$	< 2%
HbA <sub>2</sub>	$\alpha_2\beta_2$	2-5%

HbA <sub>1c</sub>	$\alpha_2\beta_2$ -glucose	3-9%
-------------------	----------------------------	------

(Note: The-chains in these hemoglobin's are identical)

Q.102 Cellular and flagellar movement is carried out by all of the following except:

- 1 Intermediate filaments.
- 2 Actin.
- 3 Tubulin.
- 4 Myosin.

Answer is 1

Ganong Physiology 20 ed/14

1 The cytoskeleton is made up primarily of microtubules, intermediate filaments and microfilaments.

2 Microtubules are a dynamic portion of the cell skeleton. They provide the tracks for transport of vesicles, organelles such as secretory granules, and mitochondria from one part of the cell to another. Microtubules are made up of 2 lobular protein subunits  $\alpha$ - and  $\beta$ -tubulin.

3 Intermediate filaments form flexible scaffolding for the cell and help it resist external pressure it does not help in any movement in or of the cell.

#### Molecular motors

Microtubule base	Kinesin and dyne
Actin based	Myosin

So microtubule, actin and myosin functions as molecular motor (in movement of cell < flagella < cilia)

Q.103 Heme is converted to bilirubin mainly in:

- 1 Kidney.
- 2 Liver.
- 3 Spleen.
- 4 Bone marrow.

Answer is 3

Harrison 16th ed/239

Sequence of Heme catabolism and bilirubin

Spleen>Liver (Other Reticuloendothelial cells)



Genetic or functional deficiency of the glucuronyl transferase system

UNCONJUGATED AND TOTAL BILIRUBIN INCREASES

- . Crigler - Najjar syndrome.
- . Gilbert syndrome
- . Physiological jaundice in newborn especially premature infants

Q.104 An example of a tumor suppressor gene is:

- 1 myc

2 fos

3 ras

4 Rb

Answer is 4

Harrison 15th ed/ chapter 81

Love & Bailey 24th ed/214

Some e.g. of Tumor Suppressor gene involved in human tumorigenesis

Gene	Chromosome	Cancer type
APC	5q 21	Colon
P53	17P13	App. 50% of all cancer
RB1	13q14	Retinoblastoma, lung, breast, prostate
SMAD4	18q21	Pancreatic
WT1	11P13	Wilm's tumor
VHL	3P25	Kidney, phaeochromocytoma

Ras, fos & myc all are oncogene

Q.105 HIV can be detected and confirmed by:

1 Polymerase Chain Reaction (PCR)

2 Reverse Transcriptase - PCR

3 Real time PCR

4 Mimic PCR.

Answer is 1

Long & Prober's Pediatrics infectious diseases 2nd Ed PG 677,

Samters immunological diseases 5th Ed, Vol -1 Pg 438

PCR is most often used to find pro-viral DNA within the chromosomes of infected mononuclear cells. Viral RNA, which represents viral replication, can also be detected by PCR. The polymerase chain reaction for the detection of HIV DNA or RNA is extremely sensitive test that can detect as few as one copy of viral DNA or RNA in 10 cells.

→HIV DNA PCR is relatively rapid diagnostic assay test can be performed with in 24 hrs using anticoagulated whole blood.

→Reverse transcriptase- PCR is used for the quantitative evaluation of HIV RNA within the plasma for the prognosis point of view.

→Viral culture and p24antigen detection are also quantitative virologic assay used for disease progression and response to therapy.

→The gold standard for the determination of HIV is culture.

**Hence answer is 1.**

PCR amplification of the HIV proviral DNA provides the ability to detect HIV at earlier stages of infection, because the viral nucleic acid is present immediately upon exposure.

Reverse transcriptase PCR (RT - PCR) - is a modified version of PCR in which C-DNA produced from an RNA sample using reverse transcriptase is amplified. RT-PCR is used to measure the quantity of HIV (an RNA virus), circulating in the blood (viral load) when monitoring the response to drugs or the status of infection in-patient with HIV infection.

In Western blot GP120, p55, gp41 and p24 antigen taken and antibodies against these detected. The Probe antibody used in it is 125I - goat anti human Ig.

Q.106 Which one of the following molecules is used for cell signaling?

- 1 CO<sub>2</sub>.
- 2 O<sub>2</sub>.
- 3 NO.
- 4 N<sub>2</sub>.

Answer is 3

Ganong Physiology 20th ed /109

NITRIC OXIDE

1 also called EDRF (endothelium derived relaxing factor)

2 It acts by activating guanyl cyclase by direct binding. (Not G protein mediated action, like other transmitters). For signaling it do not require G protein, It directly diffuses in cell.

3 Synthesized from L-arginin by action of NO synthase requires NADPH.

NO synthase is also called NADPH diaphorase (NDP).

Carbon monoxide (CO) is another gas that is probably a transmitter in brain.

- Signal transduction by using cGMP pathway - ANF and NO.

- Tyrosine kinase activity of receptor seen in

Insulin	EGF
PDGF	IGF

107 All of the following hormones have cell surface receptors except:

- 1 Adrenalin.
- 2 Growth Hormone.
- 3 Insulin.
- 4 Thyroxin.

Answer is 4

Ganong Physiology 20th ed/313

Harpur Biochemistry 26th ed/138

Lipid soluble hormones (steroids and thyroid hormone)

- 1) Their Receptors are inside the cell.
- 2) Hormone - receptor complex binds to hormone response elements (HRE, of enhancer gene) in DNA.
- 3) Control of gene expression requires hour

E.g. - Steroids

Calcitriol

Thyroxines

Retinoic acid

While insulin, adrenalin, growth hormone and other (a lot of protein hormone) are water-soluble and they do not cross cell membrane. Their receptors are in the cell membrane.

Thyroid hormones enter cells and T3 binds to thyroid receptor, which are present in the nuclei.

108 Fluoride, used in the collection of blood samples for glucose estimation, inhibits the enzyme:

- 1 Glucokinase.
- 2 Hexokinase.
- 3 Enolase.
- 4 Glucose-6-phosphatase.

Answer is 3

108. PG 232

Dehydration of 2-Phosphoglycerate to Phosphoenolpyruvate

Enolase is a homodimer that is inhibited by fluoride, with formation of the magnesium fluorophosphates complex at the active site. This property of fluoride is used to inhibit glycolysis in blood specimens obtained for measurement of glucose concentration. In the absence of fluoride (or any other antiglycolytic agent), the blood glucose concentration decreases at about 10 mg/dL per hour at 25°C. The rate of decrease is more rapid in blood from newborn infants owing to the increased metabolic activity of the erythrocytes and in leukemia patients because of the larger numbers of leukocytes.

Neuron-specific and non-neuron-specific enolase isoenzymes have been used as markers to distinguish neurons from nonneuronal cells (e.g., glial cells that are physically and metabolically supportive cells of neurons) by immunocytochemical techniques. Neuron-specific enolase is extremely stable and resistant to a number of in vitro treatments (e.g., high temperature, urea, chloride) that inactivate other enolases.

Q.109 In the small intestine, cholera toxin acts by:

- 1 ADP-ribosylation of the G regulatory protein.
- 2 Inhibition of adenyl cyclase.
- 3 Activation of GTPase.
- 4 Active absorption of NaCl.

Answer is 1

R Ananthanarayan Panikar Microbiology 5th ed/286

A1 Fragment of cholera toxin causes prolonged activation of cellular adenylate cyclase and accumulation of c-AMP, leading to out pouring of large quantities of water and electrolytes into the small intestinal lumen, and the consequent watery diarrhea.

#### PEARL POINTS

Certain bacterial exotoxins are enzyme and they attach to ADP - ribose residue of NAD to G subunit. This activity is K/A ADP – ribosylation. Some oncogenic mutation leads to ADP ribosylation of some protein (gene product)

Cholera toxin	Ribosylation of Gs d	diarrhoea of cholera
E.coli	Gs $\alpha$	Traveler's diarrhoea
Pertusis toxin	Gi $\alpha$	Pertusis

p21 Gs $\alpha$  -Colon, lung, breast, bladder tumor

ras (GSP) -Pituitary tumors, adenomas, endocrine ovarian

Q.110 The following is not a feature of malignant transformation by cultured cells:

- 1 Increased cell density.

- 2 Increased requirement for growth factors.
- 3 Alterations of cytoskeletal structures.
- 4 Loss of anchorage.

Answer is 2

Molecular cell biolog Lodish, Berk 4th edi/1058

• The cells, which continue to grow when the normal cells have become quiescent, have undergone transformation and are called to transformed cell. Properties of transformed cell - similar to that of malignant cell it is called malignant transformation of cultured cell.

- 1 Change in cell morphology
- 2 Ability to grow unattached to a basal lamina or other extracellular matrix called loss of anchorage)
- 3 Loss of Actin microfilament
- 4 Reduced requirement for growth factor.
- 5 Secretion of plasminogen activator.

Q.111 Osteoclasts are inhibited by:

- 1 Parathyroid hormone.
- 2 Calcitonin.
- 3 1,25-dihydroxycholecalciferol.
- 4 Tumor necrosis factor.

Answer is 2

Ganong Physiology 20th ed/373

Factors inhibit Osteoclasts are -

Calcitonin TGF ?

Estrogen IFN?

PGE2

Factor inhibits osteoblast - only Corticosteroids.

**Note** - Parathyroid excess leads to loss of calcium from bone by activating osteoclast but its receptor is not on osteoclast. It's receptor on osteoblast - it activates the osteoclast.

Q.112 The protective effects of breast milk are known to be associated with:

- 1 Ig M antibodies.
- 2 Lysozyme.
- 3 Mast cells.
- 4 Ig A antibodies.

Answer is 4

Forfar& Arneil's Textbook of Pediatrics 4th Ed ,Pg-364

Macrophages and non-specific immune factors such as lactoperoxidase, unsaturated lactoferrin and Lysozyme are bactericidal. Lipase kills Giardia lamblia and entamoeba and many gangliosides and lipids are viricidal. Nevertheless specific passive immunity conferred by secretory Ig A is possibly of greater importance. It confers passive immunity to the baby and exerts its protective action by preventing bacterial contact to epithelial cell surfaces, thus preventing gastrointestinal infections

Q.113 A simple bacterial test for mutagenic carcinogens is:

- 1 Ames test.
- 2 Redox test.
- 3 Bacteriophage.
- 4 Gene splicing.

Answer is 1



Robbins Pathology 6th ed/307-308

The mutagenic potential is investigated by most commonly using the Ames test. This test uses the ability of a chemical to induce mutation in the bacterium *Salmonella typhimurium*. 70-90% of known chemical carcinogens score positive in the Ames test.

?Bacteriophages are viruses that are responsible for transduction.

?Gene splicing is the genetic defect responsible for  $\beta$  Thalassemia. Mutation in splice sites affects the accuracy of intron removal from hetero-nuclear RNA (hn RNA) during posttranscriptional processing.

Mutation in splice site now well documented in –

$\beta$  Thalassemia

Gaucher's disease and

Tay - Sachs's disease.

Q.114 The predominant isozyme of LDH in cardiac muscle is:

1 LD-1.

2 LD-2

3 LD-3

4 LD-5.

Answer is 1 MBB4TH/233

Harsh Mohan Pathology 3rd ed./349

Harpers Biochemistry 26th ed/57

LDH-1 is myocardial specific isozyme; estimation of ratio of LDH-1/LDH-2 above 1 is reasonably helpful in making a diagnosis of MI.

TABLE 13.3

Serum LDH Isoenzyme Patterns in Various Disorders\*

Isoenzyme Pattern	Disorder
Elevation of LDH-1 and LDH-2, frequently	Myocardial infarction
LDH-1 > LDH-2	Pernicious anemia Hemolysis Muscular dystrophy (later stages)
Elevation of LDH-5	Liver disease
	Skeletal muscle damage Some cancers
Elevation of LDH-3	Some neoplastic diseases frequently Lymphoproliferative
LDH-3 > LDH-2	disorders Platelet-related disorders
Elevation of LDH-2 and LDH-3	Pulmonary infarction
All isoenzymes elevated	Widespread tissue injury

\*Normal distribution LDH-1 < LDH-2 > LDH-3 > LDH-4 < = > LDH-5

Q.115. Both Vitamin K and C are involved in:

1 The synthesis of clotting factors.

2 Post translational modifications.

3 Antioxidant mechanisms.

4 The microsomal hydroxylation reactions.

Answer is 2

Harpar Biochemistry 26th ed/495,487

Vit. C leads to posttranslational modification of Collagen. It leads to hydroxylation of

proline residues at the Y position in procollagen chains as they pass through the RER. Vit. K leads to carboxylation of the coagulation factor II, VII, IX and X, as well as the anticoagulant protein C and S. It does carboxylation of Glutamic acid residue. This Vit. K dependent Carboxylation is a cotranslational modification/post translational modification.

Q.116 Enzymes that move a molecular group from one molecule to another are known as:

1. Ligases.
2. Oxido-reductases.
3. Transferases.
4. Dipeptidases.

Answer is 3 MBB4TH/86  
Harper Biochemistry 26th ed/50

TABLE 8.3 Six major classes of enzymes

Class	Type of reaction	Example
1. Oxidoreductases	Oxidation-reduction	Lactate dehydrogenase
2. Transferases	Group transfer	Nucleosidemonophosphatekinase (NMP kinase)
3. Hydrolases	Hydrolysis reaction (transfer of Chymotrypsin functional groups to water)	
4. Lyases	Addition or removal of groups to double bonds	Fumarase
5. Isomerases	Isomerization (intramolecular group transfer)	Triose phosphate Isomerases
6. Ligases	Ligation of two substrates at the expense of ATP hydrolysis	Aminoacyl-tRNA synthetase

Q.117 The membrane protein, clathrin is involved in:  
 1 Cell motility.  
 2 Receptor-mediated endocytosis.  
 3 Exocytosis.  
 4 Cell shape.

Answer is 2 MBB4TH/186  
Harper Biochemistry 26th ed/420,429117./185-187

- Clathrin is a major component of coated vesicle. Clathrin and it's tightly bound light chains forms flexible lattice leading to scaffolding of the surrounding vesicle.
- Clathrin coated vesicle have an important role in receptor mediated endocytosis in addition to role in intracellular transport.
- LDH receptor internalization is a good example of clathrin coated receptor mediated endocytosis.

Q.118 A highly ionized drug:  
 1 Is excreted mainly by the kidney.  
 2 Can cross the placental barrier easily.  
 3 Is well absorbed from the intestine.  
 4 Accumulates in the cellular lipids.

Answer is 1  
K.D.T. medical pharmacology 5th ed/26

Lipid soluble drugs filtered at the glomerulus back diffuses in the tubules because 99% of glomerular filtrate is reabsorbed, but nonlipid soluble and highly ionized drugs are unable to do so. Thus rate of excretion of such drugs are parallels to gfr (or Creatinine clearance). So a highly

ionized drug mainly excreted by kidney. While lipid soluble drugs can cross cell membrane directly. So these drugs can cross the placental barrier easily, and well absorbed from intestine. Lastly lipid soluble drugs accumulate in the lipid tissues.

Q.119 The amino acid residue having an imino side chain is:  
 1 Lysine.  
 2 Histidine.  
 3 Tyrosine.  
 4 Proline.

Answer is 4 MBB4TH/21 Lippincott illustrated biochemistry PG-4

Proline is the A.A. that has an imino side chain. Proline is a secondary amine whose presence in a protein disrupts normal secondary structure. Proline contains a secondary amine group, called an imine, instead of a primary amine group. For this reason, proline is called an imino acid. This compound has a rotationally constrained rigid-ring structure. As a result, prolyl residues in a polypeptide introduce restrictions on the folding of chains. In collagen, the principal protein of human connective tissue, certain prolyl residues are hydroxylated. The hydroxylation occurs during protein synthesis and requires ascorbic acid (vitamin C) as a cofactor.

Q.120 CO<sub>2</sub> is primarily transported in the arterial blood as:  
 1 Dissolved CO<sub>2</sub>.  
 2 Carbonic acid.  
 3 Carbamino-hemoglobin.  
 4 Bicarbonate.

Answer is 4 Ganong Physiology 20th ed./648  
 -There is 49 ml of CO<sub>2</sub> in each deciliter of arterial blood.  
 -2.6 ml is dissolved.  
 -2.6 ml as Carbamino compound  
 -43.8 ml is as in HCO<sub>3</sub><sup>-</sup>  
 So CO<sub>2</sub> is primarily transported in the arterial blood as Bicarbonate.

Q.121 'Endemic Disease' means that a disease:  
 1 Occurs clearly in excess of normal expectancy.  
 2 Is constantly present in a given population group.  
 3 Exhibits seasonal pattern.  
 4 Is prevalent among animals.

Answer is 2 K PARK - P.S.M 17th ed/82.

Endemic disease	Constant presence of a disease or infection with in a given geographic area or population group, without importation from outside.
Epidemic	Disease occurs clearly in excess of normal expectancy is called
Pandemic	Epidemic affecting a large population or crossing the boundaries of nations

Q.122 Which one of the following is a good index of the severity of an acute disease?

- 1 Cause specific death rate.
- 2 Case fatality rate.
- 3 Standardized mortality ratio.
- 4 Five year survival

Answer is 2                      K PARK - PSM 17th ed/49 (repeat)

Case fatality rate represents the killing power of a disease. It is simply the ratio of deaths to cases. So It is a ratio not the true rate. Case fatality rate is closely related to virulence.

$$\text{C.F.R} = \frac{\text{Total No. Of death d/t a particular disease}}{\text{Total No. Of cases d/t the same disease}} \times 100$$

Q123 Which one of the following statements about influence of smoking on risk of coronary heart disease (CHD) is not true?

- 1 Influence of smoking is independent of other risk factors for CHD
- 2 Influence of smoking is only additive to other risk factors for CHD
- 3 Influence of smoking is synergistic to other risk factors for CHD
- 4 Influence of smoking is directly related to number of cigarettes smoked per day.

Answer is 2                      K PARK PSM 17th ed/275

-The degree of risk of developing CHO is directly related to the number of cigarettes smoked per day.

-Cigarettes Filters are probably not protective.

-There is evidence that the influence of smoking is not only independent of, but also synergistic with other risk factors such as HTN and elevated serum cholesterol. So choice 2 is wrong.

Q.124 Antibiotic treatment of choice for treating cholera in an adult is a single dose of:

- 1 Tetracycline.
- 2 Co-trimoxazole.
- 3 Doxycycline.
- 4 Furazolidone.

Answer is 3                      K. Park P.S.M. 17th ed./173. Table 9.124

Antibiotics used in the treatment of cholera

Antibiotics	Children	Adults
Doxycycline once	-	300 mg
Tetracycline 4 times a day for 3 days	12.5 mg/kg	500 mg
Trimethoprim (TMP) TMP sulfamethoxazole (SMX) SMX twice a day for 3 days	5 mg/kg and 25 mg/kg	TMP 160 mg SMX 800 mg

1) Erythromycin and chloramphenicol may also be used when none of the other recommended antibiotics are available, or when Vibrio Cholerae 01 is resistant to the latter.

2) Doxycycline is the antibiotic of choice for adults (excepting pregnant women), since a single dose suffices.

3) TMP-SMX is the antibiotic of choice for children. Tetracycline is equally effective, but is not available everywhere in paediatric form.

4) Furazolidone is the antibiotic of choice for pregnant women.

Q.125 All of the following statements are true about Congenital Rubella except:

- 1 It is diagnosed when the infant has IgM antibodies at birth.

- 2 It is diagnosed when IgG antibodies persist for more than 6 months.  
3 Most common congenital defects are deafness, cardiac malformations and cataract.  
4 Infection after 16 weeks of gestation results in major congenital defects.

Answer is 4 K PARK PSM 17th ed/122

- The first trimester of pregnancy is the most disastrous time for the foetus as the organs are developing.
- Classical triad is patent ductus arteriosus, cataract and deafness
- Infection in 2nd trimester may cause deafness, but those infected after 16 weeks suffer no major abnormalities.
- Congenital rubella is diagnosed by the isolation of rubella virus and/or the detection of Ig M antibodies in a single serum sample, and/or the documentation of either the persistence of rubella antibodies in serum beyond 1 year of age/more than 6 month or a rising antibody titer anytime during infancy in an unvaccinated child

Q.126 The recommended daily energy intake of an adult woman with heavy work is:

- 1 1800.
- 2 2100.
- 3 2300.
- 4 2900.

Answer is 4 K PARK PSM 17th ed/432

Q.127 All of the following methods are antilarval measures except:

- 1 Intermittent irrigation.
- 2 Paris green.
- 3 *Gambusia affinis*.
- 4 Malathion.

Answer is 4 K PARK PSM 17th ed/546-547

- Anti-larval measure
- a) Environmental control - Source reduction by intermittent irrigation, Filling and drainage. These methods generally produce permanent results.
- b) Chemical control - commonly used larvicides are
  - 1) Mineral oils
  - 2) Paris green (Copper acetoarsenite)
  - 3) Synthetic insecticidesFenthion, chlorpyrifos and abate are the most effective larvicides.  
(malathion is not much effective,c) Biological control - *Gambusia affinis*  
*Lebister reticulatus*(Barbados millions)So probable answer is malathion.

Q.128 All of the following are true about the Herd Immunity for infectious diseases except:

- 1 It refers to group protection beyond what is afforded by the protection of immunized individuals.
- 2 It is likely to be more for infections that do not have a sub-clinical phase.
- 3 It is affected by the presence and distribution of alternative animal hosts.
- 4 In the case of tetanus it does not protect the individual.

Answer is 2 K PARK PSM 17th ed/90

Elements, which contribute the herd immunity, are

- 1) Occurrence of clinical and subclinical infection in herd
- 2) Immunisation of herd
- 3) Herd structure.

Herd structure is never constant; it is affected by the presence and distribution of alternative animal

hosts.

- In the case of Tetanus, however herd immunity does not protect the individual.
- Herd immunity implies group protection beyond that afforded by the protection of immunized individuals.

So only choice is left (2) that is the answer because Herd immunity will be less for infections that do not have a sub clinical phase.

Q.129 The best indicator for monitoring the impact of Iodine Deficiency Disorders control programme is:

- 1 Prevalence of goiter among school children.
- 2 Urinary iodine levels among pregnant women.
- 3 Neonatal Hypothyroidism.
- 4 Iodine level in soil.

Answer is 3 K PARK PSM 17th ed/440

#### Iodine monitoring

Countries implementing control programmes require a network of laboratories for iodine monitoring and surveillance. These laboratories are essential for a) iodine excretion determination b) determination of iodine in water, soil and food as part of epidemiological studies, and c) determination of iodine in salt for quality control.

Neonatal hypothyroidism is a sensitive pointer to environmental iodine deficiency and can thus be an effective indicator for monitoring the impact of a programme.

Q.130 What is the color-coding of bag in hospitals to dispose off human anatomical wastes such as body parts?

- 1 Yellow.
- 2 Black.
- 3 Red.
- 4 Blue.

Answer is 1 K PARK PSM 17th ed/567

Schedule I see table 14.1

Schedule II see table 14.2

Q.131 WHO defines adolescent age between:

- 1 10-19 years of age
- 2 10-14 years of age
- 3 10-25 years of age
- 4 9-14 years of age

Answer is 1 K. Park P.S.M 17th ed/99

O. P. Ghai essential of pediatric

WHO EPI Schedule -

- The adolescent age group 10-19 year represents an important additional target group for immunization.

Q.132 In a village having population of 1000, we found patients with certain disease. The results of as new diagnostic test on that disease are as follows.

Test result	Disease	
	Present	Absent
+	180	400

-	20	400

What is the percent prevalence of disease?

1. 0.20.
2. 2.
3. 18.
4. 20.

Answer is 4

- Population is 1000.

- Total no. Have diseased. Person  $\rightarrow 180 + 20 = 200$

- So prevalence is 200 per 1000 of population

But % prevalence is  $\frac{200}{1000} \times 100$

= 20%

Q.133 The following tests are used to check the efficiency of pasteurization of milk except:

- 1 Phosphatase test.
- 2 Standard plate count.
- 3 Coliform count.
- 4 Methylene blue reduction test.

Answer is 4 K PARK PSM 17th ed/450

Tests of pasteurized milk are –

- 1) Phosphatase test
- 2) Standard plate count
- 3) Coliform count

Most of countries in the west enforce a limit of 30000 bacterial count per ml of pasteurized milk.

The standard in most countries is that Coliforms be absent in 1 ml of milk. Presence of Coliform in pasteurized milk is an indication either of improper pasteurization or post pasteurization contamination.

Q.134 What will be the BMI of a male whose weight is 89 kg and height is 172 cm:

- 1 27.
- 2 30.
- 3 33.
- 4 36.

Answer is 2 K PARK PSM 17th ed/229

(1) Body mass index (Quetelet's index) =  $\frac{\text{Weight (kg)}}{\text{Height (m)}^2}$   
 $\frac{89}{1.72 \times 1.72} = 30$

(2) Broca index = Height (cm) minus 100

For example, if a person's height is 160 cm.

his ideal weight is  $(160-100) = 60$  kg

The body mass index (BMI) and the Broca index are widely used.

Skinfold thickness, it is a rapid and "non-invasive" method for assessing body fat. Several varieties of calipers (e.g. Harpenden skin calipers) are available for the purpose. The measurement may be taken at all the four sites - mid-triceps, biceps, subscapular and suprailiac regions. The sum of the measurements should be less than 40 mm in boys and 50 mm in girls.

Q.135 The most common side effect of IUD insertion is:

- 1 Bleeding.
- 2 Pain.
- 3 Pelvic infection.
- 4 Ectopic pregnancy.

Answer is 1 K PARK PSM 17th ed/342

#### SIDE-EFFECTS AND COMPLICATIONS

1. Bleeding The commonest complaint of women fitted with an IUD (inert or medicated) is increased vaginal bleeding.

- Pain is second major side effect, leading to IUD removal. It is most common side effect which increases the removal rate.

Other complications -

1) PID 2) ectopic pregnancy 3) uterine perforation.

- The pain due to IUCD is usually disappear by the third month.

- The risk of PID is highest in first few months after IUD insertion.

- Perforation d/t IUCD occur more frequently when insertions are performed between 48 hr and 6 weeks post partum.

- IUCD is post coital contraceptive of choice.

- Highest risk of ectopic pregnancy seen with progestasert.

Q.136 For the treatment of case of class III dog bite, all of the following are correct except:

- 1 Give Immunoglobulins for passive immunity.
- 2 Give ARV.
- 3 Immediately stitch wound under antibiotic coverage.
- 4 Immediately wash wound with soap and water.

Answer is 3 K PARK PSM 17th ed/210

Combined administration of a single dose of antirabies serum with a course of vaccine, together with local treatment of the wound is the best specific prophylactic treatment after exposure of man to rabies.

Purpose of local treatment is to remove as much virus as possible from the site of inoculation before it can be absorbed on nerve endings. Local treatment of wounds is of maximal value when applied immediately after exposure (within minutes if possible) but it should not be neglected if several hours or days have elapsed.

Immediate flushing and washing the wound preferably under a running tap, for atleast 5 minutes is of paramount importance in the prevention of human rabies.

Residual virus remains in the wound (s), after cleansing, should be inactivated by irrigation with virucidal agents - either alcohol (400-700 ml/litre), tincture or 0.01% aqueous solution of iodine or povidone iodine. Quaternary ammonium compounds (e.g. savlon, cetavlon) are no longer recommended (3,7). Cauterization with carbolic acid or nitric acid is no longer recommended as it leaves very bad scars.

Bite wounds should not be immediately sutured to prevent additional trauma which may help spread the virus in to deeper tissues. If suturing is necessary, it should be done 24-48 hours later.

Q.137 A 2-year-old female child was brought to a PHC with a history of cough and fever for 4 days with inability to drink for last 12 hours. On examination, the child was having weight of 5 kg and respiratory rate of 45/minute with fever. The child will be classified as suffering from:

- 1 Very severe disease.
- 2 Severe Pneumonia.
- 3 Pneumonia.



4 No Pneumonia.

Answer is 3

K PARK PSM 17th ed/137

**Management of pneumonia in a child aged 2 months upto 5 years**

SIGNS	Chest indrawing (if also recurrent wheezing, go directly to treat wheezing	No chest indrawing but fast breathing (50 per minute or more if child 2 months -upto 12 months, 40 per minute or more if child 12 months upto 5 years	No chest indrawing Nofastbreathing (Less than 50 per minute if child 2 months upto 5 years).
CLASSIFY AS	SEVERE PNEUMONIA	PNEUMONIA	NO PNEUMONIA COUGH OR COLD

The child in the question is 2 year old. So he/she will not be classified as per classification of young infant. He will be classified as per classification of pneumonia for child aged 2 months upto 5 yrs

Q.138 The information technology has revolutionized the world of medical sciences. In which of the following year the information Technology Act was passed by the Government of India?

- 1 1998
- 2 2000.
- 3 2001.
- 4 2003.

Answer is 2

Information Technology Act, 2000(NO. 21 OF 2000) (9TH OF JUNE, 2000)

Q.139 Transplantation of Human Organs Act was passed by Government of India in;

- 1 1996.
- 2 1993.
- 3 1998.
- 4 1994.

Answer is 4

WWW. Indianlawinfo.com

Q.140 Which one of the following is not source of manager's power.

- 1 Reward.
- 2 Coercive
- 3 Legitimate.
- 4 Efferent.

Answer is 4

Q.141 The standard normal distribution:

- 1 Is skewed to the left.
- 2 Has mean=1.0
- 3 Has standard deviation=0.0

4 Has variance=1.0.

Answer is 3

K PARK PSM 17th ed/613

- Standard normal curve is smooth, bell shaped, perfectly symmetrical curve, based on a infinitely large number of serration.

- The total area of the curve is 1; its mean is zero; and its standard deviation is 1.

- The mean, median and mode all coincide according to High yield statistics.

Variance = (S.D.)<sup>2</sup>

So if S.D. is 1 than variance will also be 1

Thus the answer is 4.

Q.142 The PEFR of a group of 11 year old girls follow a normal distribution with mean 300 l/min and standard deviation 20 l/min.

1 About 95% of the girls have PEFR between 260 and 340 l/min.

2 The girls have healthy lungs.

3 About 5% of girls have PEFR below 260 l/min.

4 All the PEFR must be less than 340 l/min.

Answer is 1

K PARK PSM 17th ed/613

- Area between one S.O on either side of mean ( $x \pm 1.6$ ) will include approximately 68% of the value in the distribution.

- 2 S.D. = 95% of the value

- 3 S.D. - 99.7% of the value

In the question -

(x-) - Mean 300 L/min

S.D. = 20 L/min

1. S.D. = 20

2. SD. = 40

So 68% of the group will be in the range of ( $x \pm 20$ ).

$300 \pm 20$  - 280 to 320 about 95% of the girls will have PEFR in between ( $x \pm 40$ ) -  $300 \pm 40 = 260$  to 340 L/min

So 5% of girls will have PEFR below either 260 L/min or above 340 L/min (2.5% below 260 and 2.5% above 340)

- Choice 2 & 4 are totally wrong.

Q.143 The events A and B are mutually exclusive, so:

1 Prob (A or B) = Prob (A) + Prob (B).

2 Prob (A and B) = Prob (A), Prob (B).

3 Prob (A) = Prob (B).

4 Prob (A + Prob (B)) = 1.

Answer is

Q.144 Total Cholesterol level = a+b (calorie intake) + c (physical activity) +d (body mass index); is an example of:

1 Simple linear regression.

2 Simple curvilinear regression

3 Multiple linear regression.

4 Multiple logistic regression.

Answer is

Q.145The Hb level in healthy women has mean 13.5 g/dl and standard deviation 1.5 g/dl, what is

the Z score for a woman with Hb level 15.0 g/dl.

- 1 9.0.
- 2 10.0.
- 3 2.0.
- 4 1.0.

Answer is 2

K PARK PSM 17th ed/613

$$Z = \frac{(X - \bar{X})}{\sigma}$$

X - Single value of a object = 15 g/dl

$\bar{X}$  - Mean = 13.5 g/dl

$\sigma$  - Standard deviation = 1.5 g/dL

So  $Z = \frac{15 - 13.5}{1.5} = \frac{1.5}{1.5} = 1$

Answer - is (4).

Q.146 The diagnostic power of a test to correctly exclude the disease is reflected by:

- 1 Sensitivity.
- 2 Specificity.
- 3 Positive predictivity.
- 4 Negative predictivity.

Answer is 4

Q.147 Infant mortality does not include:

- 1 Early neonatal mortality.
- 2 Perinatal mortality.
- 3 Post neonatal mortality
- 4 Late neonatal mortality.

Answer is 2

K PARK PSM 17th ed/392

Number of deaths of children

Less than 1 year of age in a year

$$IMR = \frac{\text{Number of deaths of children less than 1 year of age in a year}}{\text{Number of live births in the same year}} \times 100$$

Number of live births in the same year

#### PERINATAL MORTALITY RATE

As currently defined, the term “perinatal mortality” includes both late foetal deaths (stillbirths) and early neonatal deaths. The Eighth Revision of the International Classification of Diseases (ICD) defined the “perinatal period” as lasting from the 28th week of gestation to the seventh day after birth. The Ninth Revision (1975) of ICD added that:

well established vital records of stillbirths is as follows:

Late foetal deaths (28 weeks gestation and more)

+ early neonatal deaths (first week) in one year

$$PMR = \frac{\text{Late foetal deaths (28 weeks gestation and more) + early neonatal deaths (first week) in one year}}{\text{Live births in the same year}} \times 1000$$

Live births in the same year

For international comparisons, “Late foetal and early neonatal deaths weighing over 1000g at birth expressed as a ratio per 1000 live births weighing over 1000g at birth”. It is calculated as:

Late foetal and early neonatal

deaths weighing over 1000g at birth

Perinatal

mortality =-----x 1000  
rate Total live births weighing over 1000g  
at birth.

Q.148 A cardiologist found a highly significant correlation coefficient ( $r = 0.90$ ,  $p=0.01$ ) between the systolic blood pressure values and serum cholesterol values of the patients attending his clinic. Which of the following statements is a wrong interpretation of the correlation coefficient observed?

- 1 Since there is a high correlation, the magnitudes of both the measurements are likely to be close to each other.
- 2 A patient with a high level of systolic BP is also likely to have a high level of serum cholesterol.
- 3 A patient with a low level of systolic BP is also likely to have a low level of serum cholesterol.
- 4 About 80% of the variation in systolic blood pressure among his patients can be explained by their serum cholesterol values and vice a versa

Q.149 All of the following drugs are effective in the treatment of pityriasis versicolor except:

- 1 Selenium sulphide.
- 2 Ketoconazole.
- 3 Griseofulvin.
- 4 Clotrimazole.

Answer is 3

Harrison's Internal Medicine 15th Ed

#### TREAETMENT

Solutions containing sulfur, salicylic acid, or selenium sulfide will clear the infection if used daily for a week and then intermittently thereafter. Treatment with a single 400-mg dose of ketaconazole (other azoles) is also effective. Ketoconazole is used for systemic treatment and Selinium miconazole and clotrimazole for local application.

Griseofulvin is the drug of choice for dermatophyte infections requiring systemic therapy. BUT IT IS NOT EFFECTIVE IN TINEA VERSICOLOR TINEA VERSICOLOR

Caused by a non-dermatophyte dimorphic fungus

A normal inhabitant of the skin

Yeast form *Pityrosporum orbiculare* does not leads the disease

Hyphal form causes characteristic lesions of disease

The typical lesions consist of oval scaly macules, papules, and patches concentrated on the chest, shoulders, and back but only rarely on the face or distal extremities.

On dark skin, they often appear as hypo pigmented areas,

Hypo pigmentation is d/t azelic acid

Disease rare in children.

A KOH preparation from scaling lesions will demonstrate a confluence of short hyphae and round spores (so-called spaghetti and meatballs).

- Pityriasis Alba can be differentiated by more common involvement of face and children.

- Indeterminate leprosy can be differentiated by absence of scaling, presence of anaesthesia (if present) and epidural atrophy and patient belonging to high leprosy prevalence state.

Q.150 A 36-year-old factory worker developed itchy, annular scaly plaques in both groins.

Application of a corticosteroid ointment led to temporary relief but the plaques continued to extend at the periphery. The most likely diagnosis is:

- 1 Erythema annulare centrifugum.
- 2 Granuloma annulare.
- 3 Annular lichen planus.

4 Tinea cruris.

Answer is 4

Harrison's Internal Medicine 15th Ed

When Tinea is wrongly treated with steroid, lesions get more profuse and itching is less. It is called Tinea incognito. While corticosteroid is used in treatment of all three condition except tinea.

Q.151 A 16-year-old boy presented with asymptomatic, multiple, erythematous, annular lesions with a collarettes of scales at the periphery of the lesions present on the trunk. The most likely diagnosis is:

1 Pityriasis versicolor.

2 Pityriasis alba.

3 Pityriasis rosea.

4 Pityriasis rubra pilaris.

Answer is 3

Harrison's Internal Medicine 15th Ed

### PITYRIASIS ROSEA

Pityriasis rosea (PR) is a papulosquamous eruption of unknown etiology that occurs more commonly in the spring and fall. Its first manifestation is the development of a 2- to 6-cm annular lesion (the herald patch). This is followed in a few days to a few weeks by the appearance of many smaller annular or papular lesions with a predilection to occur on the trunk. The lesions are generally oval, with their long axis parallel to the skin-fold lines. Individual lesions may range in color from red to brown and have a trailing scale.

PR shares many clinical features with the eruption of secondary syphilis, but palm and sole lesions are extremely rare in PR and common in secondary syphilis.

Treatment is generally directed at alleviating pruritus and consists of oral antihistamines, midpotency topical glucocorticoids, and, in some cases, the use of UV-B phototherapy.

P. Versicolour	Predominant trunk involvement with brown, scaly macules
P. Rosea	Predominant trunk involvement with erythematous annular lesions with peripheral fine bran like scales
P. Rubra Pilaris	There is predominant face and scalp involvement with late involvement of whole body - Orangey hue erythema - Thickened Palms with yellowish discoloration - Follicular eruption.

Q.152 The only definite indication for giving systemic Corticosteroids in pustular psoriasis is:

1 Psoriatic erythroderma with pregnancy.

2 Psoriasis in a patient with alcoholic cirrhosis.

3 Moderate arthritis.

4 Extensive lesions.

Answer is 1

Rook/Wilkinson/EBLING, Textbook of dermatology 6th edition /1631,1643

Role of systemic steroid in Psoriasis -

Systemic steroid should not be used in the routine care of Psoriasis. They do have role in the management of persistent, otherwise uncontrollable, erythroderma, which is causing metabolic complication and in fulminating generalized pustular psoriasis of the von Zumbusch type if other

drugs are contraindicated.

- Generalized Pustular Psoriasis of pregnancy (Impetigo herpetiformis)

Fulminating disease in pregnancy is best treated with IV Prednisolone, the drug which carries the least hazard for the fetus.

- Methotrexate, retinoids, PUVA or combination therapy may be needed after delivery to allow weaning off the steroid.

Q.153 A 40-year-old woman presents with a 2-year history of erythematous papulopustular lesions on the convexities of the face. There is a background of erythema and telangiectasia. The most likely diagnosis in the patient is:

1 Acne vulgaris.

2 Rosacea.

3 Systemic lupus erythematosus.

4 Polymorphic light eruption.

Answer is 2

Harrison's Internal Medicine 15th Ed

#### ACNE ROSACEA

Individuals with rosacea initially demonstrate a pronounced flushing reaction. This may be in response to heat, emotional stimuli, alcohol, hot drinks, or spicy foods. As the disease progresses, the flush persists longer and longer and may eventually become permanent. Papules, pustules, and telangiectases can become superimposed on the persistent flush. Rosacea of very long standing may lead to connective tissue overgrowth, particularly of the nose (rhinophyma).

Ocular problems are potentially sight threatening and warrant ophthalmologic evaluation.

It is treated effectively with oral tetracycline in doses ranging from 250 to 1000 mg/d. Topical metronidazole or sodium sulfacetamide has also been shown to be effective. The use of low-potency, nonfluorinated topical glucocorticoids, particularly after cool soaks, is helpful in alleviating facial erythema.

NOTE-Fluorinated topical glucocorticoids should be avoided since chronic use of these preparations may actually elicit rosacea.

#### ACNE VULGARIS

The clinical hallmark of acne vulgaris is the comedone, which may be closed (whitehead) or open (blackhead). Closed comedones appear as 1- to 2-mm pebbly white papules, which are accentuated when the skin is stretched. They are the precursors of inflammatory lesions of acne vulgaris.

Q.154 An 8-year-old boy from Bihar presents with a 6 months history of an illdefined, hypopigmented slightly atrophic macule on the face. The most likely diagnosis is:

1 Pityriasis alba.

2 Indeterminate leprosy.

3 Morphoca.

4 Calcium deficiency.

Answer is

- Pityriasis Alba can be differentiated by more common involvement of face and children .

- Indeterminate leprosy can be differentiated by absence of scaling, presence of anaesthesia (if present) and epidural atrophy and patient belonging to high leprosy prevalence state.

Q.155 A 27-year old sexually active male develops a vesiculobullous lesion on the glans soon after taking tablet paracetamol for fever. The lesion healed with hyperpigmentation. The most likely diagnosis is:

1 Behcet's syndrome.

2 Herpes genitalis.

3 Fixed drug eruption.

4 Pemphigus vulgaris.

Answer is 3

Harrison's Internal Medicine 15th Ed/

#### FIXED DRUG REACTIONS

These reactions are characterized by one or more sharply demarcated, erythematous lesions in which hyperpigmentation results after resolution of the acute inflammation; with rechallenge, the lesion recurs in the same (i.e., "fixed") location. Lesions often involve the lips, hands, legs, face, genitalia, and oral mucosa and cause burning. Most patients have multiple lesions. Patch testing is useful to establish the etiology. Fixed drug eruptions have been associated with phenolphthalein, sulfonamides, tetracyclines, phenylbutazone, NSAIDs, and barbiturates. Although cross-sensitivity appears to occur between different tetracycline compounds, cross-sensitivity was not elicited when different sulfonamide compounds were administered to patients as part of provocation testing.

BEHCET'S SYNDROME -is a clinicopathologic entity characterized by recurrent episodes of oral and genital ulcers, iritis, and cutaneous lesions

Q.156 In a firearm injury, there is burning, blackening, tattooing around the wound, along with cherry red colour of the surrounding tissues and is cruciate in shape, the injury is:

- 1 Close shot entry.
- 2 Close contact exit.
- 3 Contact shot entry.
- 4 Distant shot entry.

Answer is 3

Parikh 1996 ed/p-280, Modi 22nd ed./354, Reddy 2000ed/181, '83, 185

Contact wound make - cruciform entrance wound, may be larger than exist.

Flame/burning/scorching are produced by- Revolvers/pistols when they are generally within range of about 2-3inch.

If a firearm is discharged very close or in actual contact, the subcutaneous tissue over an area of 20f 3 inches round the wound of entrance are lacerated and the surrounding skin is usually scorched and blackened by smoke and tattooed with unburnt grains of gun power or smokeless propellant powder.

Hence answer is contact shot entry (3).

Q.157 In methyl alcohol poisoning there is CNS depression, cardiac depression and optic nerve atrophy. These effects are produced due to:

- 1 Formaldehyde and formic acid
- 2 Acetaldehyde.
- 3 Pyridine.
- 4 Acetic acid.

Answer is 1

Modi 22nd ed/320 of Toxicology (Section II)

#### SYMPTOMS OF METHYL ALCOHOL POISONING

Dilated pupil, visual disturbances, photophobia, concentric deminution of visual fields for colour and form, followed by partial or total blindness due to retrobulbar neuritis resulting from a specific toxic effect of formaldehyde on retinal cells.

Hence answer is (1).

Q.158 In chronic arsenic poisoning the following samples can be sent for laboratory examination, except:

- 1 Nail clippings.
- 2 Hair samples.
- 3 Bone biopsy.
- 4 Blood sample.

Answer is 4

Modi toxicology Section II 22nd ed./126,129.Reddy 2000ed Toxicology

Deposition of arsenic in chronic arsenic poisoning –

- Greatest concentration found in hairs and nails where it is stored permanently.
- Its deposition in hairs begins in 15 days after administration.
- Arsenic also found in human tissues. In which the liver contain largest amount. Bones and teeth come next. The amount found in blood is negligible.
- In chronic poisoning arsenic is also found in brain, spinal cord. In fatal results, occurring from salvarsan poisoning, it is interesting to note that arsenic is not found in the brain or nervous tissue. Hence answer is blood (4).

Q.159 Which of the following statements is not correct regarding diatom?

1 Diatoms are aquatic unicellular plant.

2 Diatoms has an extracellular cost composed of magnesium.

3 Acid digestion technique is used to extract diatoms.

4 Presence of diatoms in the femoral bone marrow is an indication of antemortem inhalation of water.

Answer is 2

Modi 22nd edition Section I/289,290.Parikh 1996 ed/217-218

#### DIATOM TEST

- Finding of diatoms by microscopic examination of tissue like brain, liver or bone marrow from the femur or humerus after acid digestion is helpful in confirming death from drowning.
- Diatoms are tiny unicellular algae (aquatic plant).
- They may be fan shaped (Stellate), ribbon like and seen singly or in groups.
- They have hard siliceous (not magnesium), almost indestructible outer covering (frustules).
- A diatom shows chromatophores before acid digestion.
- Acid digestion done with strong nitric oxide and heating it till a clear fluid is obtained.
- Since diatoms resist putrefaction, the diatom test is particularly valuable where decomposition is advanced.
- Diatom test is negative in dead bodies thrown in water and in dry drowning.

Answer is - (2).

Q.160 In India, magistrate inquest is done in the following cases except:

1 Exhumation cases.

2 Dowry deaths within 5 years of marriage.

3 Murder cases

4 Death of a person in police custody.

Answer is 3

Parikh 1996 ed./386, 10).Reddy 2000ed/5

#### - MAGISTRATE'S INQUEST -

- 1) Admission of a mentally ill person in a Psychiatric hospital or a Psychiatric nursing home under certain provision of the mental health act, 1987.
- 2) Death of a convict in jail.
- 3) Death of a person in police custody or during police interrogation or as a result of police firing.
- 4) Exhumation cases.

Dowry death under section 176 (1) (Cr PC) Provides inquest by executive magistrate and section 174 (3) (Cr PC) provides as follow: when

- 1) Case involves suicide by a woman within seven years of her marriage.



- 2) The case relates to the death of a woman within 7 years of her marriage in any circumstances raising a reasonable suspicion.
- 3) The cases relate to the death of a woman within 7 years of her marriage and any relative of the woman has made a request in this behalf, the police officer will forward the body for autopsy to the nearest M.O.
- Hence answer is (3).

Q.161 At autopsy, the cyanide poisoning case will show the following features, except:

- 1 Characteristic bitter lemon smell.
- 2 Congested organs.
- 3 The skin may be pinkish or cherry red in color.
- 4 Erosion and hemorrhages in esophagus and stomach.

Answer is 1

Modi toxicology section II 22nd ed./470, 471, 473.Reddy 2000ed/530

#### HYDROCYANIC POISONING -

- It occurs in combination with leaves of cherry laurel, in bitter almonds, in the Kernels of common cherry, plum, apricot, peach and other stone fruits, the ordinary bamboo shoots, and in certain oil seeds.
- These plants contain crystalline glucoside, K/A amygdalin, which in the presence of water and natural enzyme emulsion - hydrolysed in HCN + glucose and benzaldehyde.
- First symptom is bitter almond odour of HCN (Not bitter lemon).
- KCN have strong alkaline effect and has a corrosive effect on mucous membrane.
- Post mortem staining of bright cherry red color due to cyanmethaemoglobin.
- Mucous membrane of stomach and duodenum is often red and congested.

Hence answer (1).

Q.162 The most reliable criteria in Gustafson's method of identification is:

- 1 Cementum apposition.
- 2 Transparency of root.
- 3 Attrition.
- 4 Root resorption.

Answer is 2

APURBA NANDY 1996 edition/P-63. Reddy 2000ed/58

#### ESTIMATION OF AGE FROM TEETH IN ELDERLY SUBJECTS:

→ Done by Gustafson's formula (based on ageing and decaying changes in teeth).

→ There are 6 criteria's

Attrition	Secondary dentine	Cementum apposition
Periodontosis	Root resorption	Transparency of root

→ Only attrition and Periodontosis can be used in living subjects because for examination of other changes, teeth have to be extracted out of their sockets.

→ Of all above the criteria, transparency of root done is the single most important one.

→ Rating of cementum apposition is most difficult to assess.

Important question have been asked frequently about teeth

Years	Total No. Of teeth
2-5 yr	20

At 6 yr	21-24 due to eruption of first permanent molars
7-12 yr	Remains 24
12-14 yr	25-28 due to eruption of 2 <sup>nd</sup> permanent molars.
14-17 yr	Remains 28
17-25 yr	29-32 due to eruption of 3 <sup>rd</sup> permanent molars

Q.163 The minimum age at which an individual is responsible for his criminal act is:

- 1 7 years
- 2 12 years
- 3 16 years
- 4 21 years

Answer is 1

Parikh 1996 edi/47.Reddy 2000ed/60

- Under section 82 IPC, a child under the age of seven is incapable of committing an offence. This is because that a child of that tender age cannot have a guilty mind or criminal intention with which the act is done.
- Under Section 83 IPC, a child > 7 yr and, < 12 yr in India is presumed to be capable of committing an offence if he has obtained sufficient maturity of understanding to judge the nature and consequences of his conduct on that occasion. The law presumes such maturity in a child of that age unless the contrary is proved by the defence.
- Under section 89 IPC - A child < 12 yr cannot give valid consent to suffer any harm which can occur from an act done in good faith and for its benefits eg. consent for an operation.
- Under section 87 IPC ? A person <18 yr cannot give valid consent, wheather express or implied, to suffer any harm which may result from an act not intended or not known to cause death or grievous hurt, eg. consent for a wrestling contest.

Answer is (1).

Q.164 The most reliable method of identification of an individual is:

- 1 Dactylography.
- 2 Scars.
- 3 Anthropometry.
- 4 Handwriting.

Answer is 1

Parikh 1996 ed./53.Reddy 2000ed/70

Dactylography depends on ridges and groves, over fingers and thumbs it makes absolute identification possible.

Answer is (1).

Q.165 The most common pattern of fingerprint is:

- 1 Arch.
- 2 Loop.
- 3 Whorl.
- 4 Composite.

Answer is 2

Parikh 1996 ed/53.Reddy 2000ed/70

- Loops 67%,
- Whorls - 25%,
- Arches - 6-7%, and
- Composites 1-2%

Answer is (2).

Q.166 A 30 years old male patient presents with complaints of weakness in right upper and both lower limbs for last 4 months. He developed digital infarcts involving 2nd and 3rd fingers on right side and 5th finger on left side. On examination, BP was 160/140 mm Hg, all peripheral pulses were palpable and there was asymmetrical neuropathy. Investigations showed a Hb-12 gm, TLC - 12000 Cu mm, Platelets 4,30,000, ESR - 49mm. Urine examination showed proteinuria and RBC - 10-15/hpf with no casts. Which of the following is the most likely diagnosis.

- 1 Polyarteritis nodosa.
- 2 Systemic lupus erythematosus.
- 3 Wegener's granulomatosis.
- 4 Mixed cryoglobulinemia.

Answer is 1 H15TH/1592,1966

Q.167 Which of the following infestation leads to malabsorption?

- 1 Giardia lamblia.
- 2 Ascaris lumbricoides.
- 3 Necater Americana.
- 4 Ancylostoma duodenale.

Answer is 1 H15TH/1678

Giardia remains a pathogen of the proximal small bowel and does not disseminate hematogenously. Giardia infections are common in both developed and developing countries. Because cysts are, person-to-person transmission occurs where fecal hygiene is poor. Although trophozoites adhere to the epithelium, they do not cause invasive or locally destructive alterations. The lactose intolerance and significant malabsorption that develop in a minority of infected adults and children. In a few cases usually in chronically infected, symptomatic patients the histopathologic findings (including flattened villi) and the clinical manifestations resemble those of tropical sprue and gluten-sensitive enteropathy. Disease manifestations of Giardiasis range from asymptomatic carriage to fulminant diarrhea and malabsorption. However, disease can be severe, resulting in malabsorption, weight loss, growth retardation, dehydration, and (in rare cases) death

#### PEARL POINTS

Giardiasis can be life threatening in patients with HYPOGAMMAGLOBULINEMIA  
Metronidazole is DOC

Q.168 All of the following can cause osteoporosis, except.

- 1 Hyperparathyroidism.
- 2 Steroid use.
- 3 Fluorosis.
- 4 Thyrotoxicosis.

Answer is 3 H15TH/2229

Hyperparathyroidism leads to increased bone resorption so leading to the osteoporosis.

Glucocorticoids are a common cause of medication-induced osteoporosis

Excessive thyroid hormone can accelerate bone remodeling and result in bone loss and leads to

osteoporosis.

Fluorosis leads to increased bone density so how it can lead to the osteoporosis.

Q.169 Serum angiotensin converting enzyme may be raised in all of following, except:

- 1 Sarcoidosis.
- 2 Silicosis.
- 3 Berylliosis
- 4 Bronchogenic carcinoma.

Answer is 4

Oxford Medicine 3rd Ed vol. – 2, Pg -2832

Consistently elevated serum ACE (angiotensin converting enzyme) levels are appreciably higher found in

Pulmonary condition	Non pulmonary condition
Sarcoidosis Gaucher's Silicosis Berylliosis Atypical mycobacterium infection	Alcoholic liver disease Hyperthyroidism Diabetes mellitus

-Serial serum ACE measurements can be helpful in monitoring disease activity as its correlate with chest radiograph and clinical condition.

Q.170 Hypercalcemia associated with malignancy is most often mediated by:

- 1 Parathyroid hormone (PTH)
- 2 Parathyroid hormone related protein (PTHrP).
- 3 Interleukin - 6 (IL-6)
- 4 Calcitonin.

Answer is 2 H15TH/646

Parathormone-related protein (PTHrP) produced by tumors has a central role as a mediator of hypercalcemia in cancer. PTHrP acts via the PTH hormone receptors on osteoblasts and renal tubular cells to stimulate bone resorption and renal calcium conservation.

Elevated plasma PTHrP levels are also found in most hypercalcemic patients with bone metastases. Transforming growth factors, cytokines (interleukin 1 and 6), and other unknown factors could play a contributory role.

In lymphoma, a vitamin D-related product of the tumor may also increase calcium absorption in the gut.

Q.171 All of the following are the causes of relative Polycythemia except:

- 1 Dehydration.
- 2 Dengue hemorrhagic fever.
- 3 Gaisbock syndrome.
- 4 High altitude.

Answer is 4 H15TH/353

Polycythemia can be of three types

1 Spurious (related to a decrease in plasma volume)	Gaisbock's syndrome Dehydration leads to decreased plasma volume Dengue- increased vascular permeability to
---	---

	Water leads to decreased plasma volume
2 Primary,	Polycythemia Vera
3 Secondary →(Associated with increases in EPO levels. physiologically adapted response to tissue hypoxia	Lung disease <b>High altitude</b> CO poisoning High-affinity hemoglobinopathy

A rare familial form of Polycythemia is associated with normal EPO levels but mutations producing hyper responsive EPO receptors.

Q.172 All of the following may cause ST segment elevation on EKG, except:

- 1 Early repolarization variant.
- 2 Constrictive pericarditis.
- 3 Ventricular aneurysm.
- 4 Prinzmetal's angina.

Answer is 2 H15TH/1268,1367

Reversible transmural ischemia, for example, due to coronary vasospasm (Prinzmetal's variant angina), may cause transient ST-segment elevations without development of Q waves. ST-segment elevations that persist for several weeks or more after a Q-wave infarct usually correlate with a severe underlying wall motion disorder (akinetic or dyskinetic zone), although not necessarily but can be due to a frank ventricular aneurysm

Ventricular aneurysm leads to persistent elevation of the ST segment after MI.

ST-segment elevations simulating ischemia may occur with acute pericarditis or myocarditis, or as a normal variant ("early repolarization" pattern)

Q.173 5'-Nucleotidase activity is increased in;

- 1 Bone diseases.
- 2 Prostate cancer.
- 3 Chronic renal failure.
- 4 Cholestatic disorders.

Answer is 4 H15TH/1713

Alkaline phosphatase	More specific	Located in or near the bile canalicular membrane of hepatocytes
5-nucleotidase	More specific	Same as Alkaline phosphatase
Gamma glutamyl transpeptidase (GGT)	Less specific	Located in the endoplasmic reticulum and in bile duct epithelial cells

Enzymes raised in Cholestasis → three enzymes  
Due to more diffuse localization in the liver, GGT elevation in serum is less specific for Cholestasis than are elevations of alkaline phosphatase or 5-nucleotidase. Very high level of GGT is specially seen in relation with alcoholic liver disease.

Q.174 Normal CSF glucose level in a normoglycemic adult is:

1			20-40		mg/dl
2			40-70		mg/dl
3			70-90		mg/dl
4			90-110		mg/dl
Answer	is	2	H15TH/APPENDIX	TABLE	A-3

Q.175 Bart's hydrops fetalis is lethal because:  
 1 Hb Bart's cannot bind oxygen.  
 2 The excess  $\alpha$ -globin form insoluble precipitates.  
 3 Hb Bart's cannot release oxygen to fetal tissues.  
 4 Microcytic red cells become trapped in the placenta.  
 Answer is 3 H15TH/672

The homozygous state for the  $\alpha$ -thalassemia-1 (hydrops fetalis) causes total absence of  $\alpha$ -globin synthesis. No physiologically useful hemoglobin is produced beyond the embryonic stage. Excess  $\alpha$ -globin forms tetramers called Hb Bart's ( $\alpha_4$ ), which has an extraordinarily high oxygen affinity. It delivers almost no O<sub>2</sub> to fetal tissues, causing tissue asphyxia, edema (hydrops fetalis), congestive heart failure, and death in utero.

Q.176 Cluster headache is characterized by all, except:  
 1 Affects predominantly females.  
 2 Unilateral headache.  
 3 Onset typically in 20-50 years of life.  
 4 Associated with conjunctival congestion.  
 Answer is 21 H15TH/78

**CLUSTER HEADACHE \* RAEDER'S SYNDROME, HISTAMINE CEPHALALGIA, AND SPHENOPALATINE NEURALGIA**

0.Episodic type is most common and is characterized by one to three short-lived attacks of periorbital pain per day over a 4- to 8-week period, followed by a pain-free interval that averages 1 year.

0.Men are affected seven to eight times more often than women;  
 0. Hereditary factors are usually absent.

0. Although the onset is generally between ages 20 and 50, it may occur as early as the first decade of life.

**Clinical Features**

Pain	→Periorbital pain begins without warning →Excruciating in intensity and is deep →Reaches a crescendo within 5 min →Nonfluctuating, and explosive →Strictly unilateral and usually affects the same side in subsequent months →Attacks last from 30 min to 2 h
Associated symptoms	→Homolateral lacrimation →Reddening of the eye →Nasal stuffiness →Lid ptosis, and →Nausea.

**PEARL POINTS**

- The cluster syndrome is thus clinically, genetically, and therapeutically different from migraine.
- Alcohol provokes attacks in about 70% of patients but ceases to be provocative when the bout remits; this on-off vulnerability to alcohol is pathognomonic of cluster headache.
- Only rarely do foods or emotional factors precipitate pain, in contrast to migraine.
- Propranolol and amitriptyline are largely ineffective. Lithium is beneficial for cluster headache and ineffective in migraine.

#### TREATMENT

- The most satisfactory treatment is the administration of drugs to prevent cluster attacks until the bout is over.
- Effective prophylactic drugs are prednisone, lithium, methysergide, ergotamine, sodium valproate, and verapamil.
- Lithium (600 to 900 mg daily) appears to be particularly useful for the chronic form of the disorder.
- ergotamine is most effective when given 1 to 2 h before an expected attack
- For the attacks themselves, oxygen inhalation (9 L/min via a loose mask) is the most effective modality.

Q.177 The most sensitive test for the diagnosis of myasthenia gravis is:

- 1 Elevated serum Ach-receptor binding antibodies.
- 2 Repetitive nerve stimulation test.
- 3 Positive edrophonium test.
- 4 Measurement of jitter by single fibre electromyography.

Oxford textbook of medicine /disorder of neuromuscular junction/pg1169

For practical purposes, the presence of anti-AchR antibodies is confirmatory and no further diagnostic investigations are required. It is the most specific test for M.G. but it is not the most sensitive test. In seronegative patients, electromyography and the intravenous edrophonium (Tensilon) test are helpful edrophonium test. The test is therefore likely to be of most use in patients with purely ocular symptoms and signs. False-negative and false-positive results are not uncommon.

The conventional electromyographic measure for diagnosing myasthenia gravis is the demonstration of a decremental response of the compound muscle action potential in response to repetitive nerve stimulation at 3 Hz. More sensitive, but not specific and only available in specialist centres, is the presence of increased jitter and blocking, as assessed by single-fibre electromyography.

Table 1 Ion channels responsible for the different clinical disorders

Ion channel	Clinical disorder
Acetylcholine receptor	Myasthenia gravis
Voltage-gated calcium channel	Lambert-Eaton myasthenic syndrome
Voltage-gated potassium channel	Acquired neuromyotonia

Q.178 Vitamin B12 deficiency can give rise to all of the following, except:

- 1 Myelopathy.
- 2 Optic atrophy.
- 3 Peripheral neuropathy.
- 4 Myopathy.

Answer is 4 H15TH/2432

SUBACUTE COMBINED DEGENERATION (VITAMIN B12 DEFICIENCY)

Site of involvement	Symptoms
Myelopathy (involvement of the posterior and lateral tracts)	-Parasthesias in the hands and feet -Early loss of vibration and position sensation-Progressive ataxic weakness
Peripheral neuropathy	-Loss of deep tendon reflexes
Optic atrophy	-Loss of vision

→Optic atrophy and irritability and other mental changes may be prominent in advanced cases and on occasion are the presenting symptoms (megaloblastic adness).

→ The diagnosis is confirmed by the finding of a low serum B12 concentration, elevated levels of homocysteine (homocysteinemia), methylmalonyluria, and a positive Schilling test

Q.179 EEG is usually abnormal in all of the following, except.

- 1 Sub acute sclerosing panencephalitis.
- 2 Locked-in state.
- 3 Creutzfeldt Jakob disease
- 4 Hepatic encephalopathy.

Answer is 2 H15TH/2491,1765,2333

SSPE is a rare chronic progressive demyelinating disease of the CNS associated with measles virus. Most patients give a history of primary measles infection at an early age (2 years), with a latent interval of 6 to 8 years by the development of a progressive neurologic disorder.

Creutzfeldt-Jakob disease (CJD) is a degenerative disease of the central nervous system (CNS) that is caused prions. CJD typically presents with dementia and myoclonus, and is relentlessly progressive, usually results in death within a year of onset

SSPE	Characteristic periodic pattern with bursts every 3 to 8 s of high-voltage, sharp slow waves, followed by periods of attenuated ("flat") background
CJD	→Advanced cases shows repetitive, high voltage, triphasic, and polyphasic sharp discharges  →Stereotyped periodic bursts of <200 ms duration, occurring every 1 to 2 s, makes the diagnosis of CJD very likely
Hepatic enceph.	Grade I TO III shows triphasic waves while grade IV shows delta activity.

#### PEARL POINTS

EEG changes are produced by abnormality of cerebral cortex. Locked-in state is a pontine lesion (lies deep in posterior cranial fossa), so how it can produce the EEG changes.

Q.180 All of the following are neurologic channelopathies except:



- 1 Hypokalemic periodic paralysis.
  - 2 Episodic ataxia type 1.
  - 3 Familial hemiplegic migraine.
  - 4 Spinocerebellar ataxia I.
- Answer is 4 H15TH/74,2345,2409

<b>Hypo K.P.P.</b>	<b>Voltage-sensitive, skeletal muscular calcium channel,</b>
<b>FHM</b>	<b>P/Q type calcium channel subunit expressed only in the central nervous system</b>
<b>Episodic Ataxia Types 1</b>	<b>Potassium channel</b>
Type 2	a1A voltage-dependent calcium channel subunit

The SCA1 gene product, called ataxin-1, is a novel protein of unknown function

Q.181 According to the Glasgow Coma Scale (GCS), a verbal score of 1 indicates:

- 1 No response.
- 2 Inappropriate words.
- 3 Incomprehensible sounds.
- 4 Disoriented response.

Answer is 1 H15TH/2440

**Glasgow coma scale**

<b>Clinical observation</b>	<b>Score</b>
Eye opening	
Spontaneous	4
To verbal command	3
To pain	2
None	1
Motor response	
Obeys commands	6
Localises pain	5
Flexion withdrawal to pain	4
Abnormal flexion (decorticate)	3
Extension to pain (decerebrate)	2
None	1
Verbal response	
Orientated	5
Confused conversation	4
Inappropriate words	3
Incomprehensible words	2
None	1

Q.182 Which of the following is not a neuroparasite?

- 1 Taenia solium.
- 2 Acanthamoeba.
- 3 Naegleria.
- 4 Trichinella spiralis.

Answer is 4 H15TH/1231,1202,1249

Cysticercoids can be found anywhere in the body, most commonly in the brain and the skeletal

muscle. It is caused by *Taenia solium*.

*Acanthamoeba* species causes Granulomatous Amebic Encephalitis

Primary amebic meningoencephalitis caused by *Naegleria fowleri* follows the aspiration of water contaminated with trophozoites

Trichinellosis develops after the ingestion of meat containing cysts of *Trichinella*. While most infections are mild and asymptomatic, heavy infections can cause severe enteritis, periorbital edema, myositis, and (infrequently) death. But CNS involvement is not seen.

Q.183 A 50 year old man, an alcoholic and a smoker presents with a 3 hour history of severe retrosternal chest pain and increasing shortness of breath. He started having this pain while eating, which was constant and radiated to the back and interscapular region. He was a known hypertensive. On examination, he was cold and clammy with a heart rate of 130/min. and a BP of 80/40 mmHg. JVP was normal. All peripheral pulses were present and equal. Breath sounds were decreased at the left lung base and chest X-ray showed left pleural effusion.

Which one of the following is the most likely diagnosis?

- 1 Acute aortic dissection.
- 2 Acute myocardial infarction.
- 3 Rupture of the esophagus.
- 4 Acute pulmonary embolism.

Answer is 4 H 15TH/1432

The factors that predispose to aortic dissection include systemic hypertension, a coexisting condition in 70% of patients, peak incidence is in the sixth and seventh decades.

Men are more affected than women by a ratio of 2:1.

The pain may be localized to the front (retrosternal) or back of the chest, often the interscapular region, and typically migrates with propagation of the dissection to the back. Other symptoms include syncope, dyspnea, and weakness.

Physical findings may include hypertension or hypotension, loss of pulses, or feeble pulses.

Chest x-ray often reveals a widened superior mediastinum. A pleural effusion (usually left-sided) also may be present. This effusion is typically serosanguinous and not indicative of rupture unless accompanied by hypotension and falling hematocrit.

Q.184 Which of the following is a cause of reversible dementia?

- 1 Subacute combined degeneration.
- 2 Pick's disease.
- 3 Creutzfeldt - Jakob disease.
- 4 Alzheimer's disease.

Answer is 1 H 15TH/

Q.185 Which one of the following drugs is 'Topoisomerase 1 inhibitor'?

- 1 Doxorubicin.
- 2 Irinotecan.
- 3 Etoposide.
- 4 Vincristine.

Answer is 2 H 15TH/536

Q.186 Study the following carefully:

Read the pedigree. Inheritance pattern of the disease in the family is:

- 1 Autosomal recessive type.
- 2 Autosomal dominant type.

- 3 X Linked dominant type.
- 4 X linked recessive type.

Q.187 Palpable purpura could occur in the following conditions, except:

- 1 Thrombocytopenia.
- 2 Small-vessel vasculitis.
- 3 Disseminated gonococcal infection.
- 4 Acute meningococemia.

Q.188 A 59 year old man with severe myxomatous mitral regurgitation is asymptomatic, with a left ventricular ejection fraction of 45% and an end-systolic diameter index of 2.9 cm/m<sup>2</sup>. The most appropriate treatment is:

- 1 Mitral valve repair or replacement.
- 2 No treatment.
- 3 ACE inhibitor therapy.
- 4 Digoxin and diuretic therapy.

Q.189 The gold standard for the diagnosis of osteoporosis is:

- 1 Dual energy X-ray absorptiometry.
- 2 Single energy X-ray absorptiometry.
- 3 Ultrasound.
- 4 Quantitative computed tomography.

Q.190 Nevirapine is a:

- 1 Protease inhibitor.
- 2 Nucleoside reverse transcriptase inhibitor.
- 3 Non-nucleoside reverse transcriptase inhibitor.
- 4 Fusion inhibitor.

Q.191 With reference to infections with *Escherichia coli* the following are true except:

- 1 Enteroaggregative *E.coli* is associated with Persistent diarrhoea.
- 2 Enterohemorrhagic *E.coli* can cause haemolytic uraemic syndrome.
- 3 Enteroinvasive *E.coli* produces a disease similar to salmonellosis.
- 4 Enterotoxigenic *E.coli* is a common cause of travelers' diarrhoea.

Q.192 The following statements are true regarding melioidosis except:

- 1 It is caused by *Burkholderia mallei*.
- 2 The agent is a gram negative aerobic bacteria.
- 3 Bipolar staining of the aetiological agent is seen with methylene blue stain.
- 4 The most common form of melioidosis is pulmonary infection.

Q.193 The following bacteria are most often associated with acute neonatal meningitis except:

- 1 *Escherichia coli*.
- 2 *Streptococcus agalactiae*.
- 3 *Neisseria meningitidis*.
- 4 *Listeria monocytogenes*.

Q.194 All of the following *Vibrio* sp. are halophilic, except:

- 1 *V. cholerae*.
- 2 *V. parahaemolyticus*.
- 3 *V. alginolyticus*.

4 *V. fluvialis*.

All members of the genus are highly motile, facultatively anaerobic, curved gram-negative rods with one or more polar flagella. Except for *V. cholerae* and *V. mimicus*, all require salt for growth ("halophilic vibrios").

Q.195 All of the following organisms are known to survive intracellularly except:

- 1 *Neisseria meningitidis*.
- 2 *Salmonella typhi*.
- 3 *Streptococcus pyogenes*.
- 4 *Legionella pneumophila*.

Q.196 The capsule of *Cryptococcus neoformans* in a CSF sample is best seen by

- 1 Grams stain.
- 2 India ink preparation.
- 3 Giemsa stain.
- 4 Methanamine - Silver stain.

Q.197 In Von Hippel-Lindau Syndrome, the retinal vascular tumours are often associated with intracranial hemangioblastoma. Which one of the following regions is associated with such vascular abnormalities in this syndrome?

- 1 Optic radiation.
- 2 Optic tract.
- 3 Cerebellum.
- 4 Pulvinar.

Q.198 Viruses can be isolated from clinical samples by cultivation in the following except:

- 1 Tissue culture.
- 2 Embryonated eggs.
- 3 Animals.
- 4 Chemically defined media.

Ananthnarayan,s Textbook of microbiology,

Q.199 It is true regarding the normal microbial flora present on the skin and mucous membranes that:

- 1 It cannot be eradicated by antimicrobial agents
- 2 It is absent in the stomach due to the acidic pH.
- 3 It establishes in the body only after the neonatal period.
- 4 The flora in the small bronchi is similar to that of the trachea.

Q.200 An army jawan posted in a remote forest area had fever and headache. His fever was 104 F and pulse was 70 per min. He had an erythematous lesion of about 1 cm on the leg surrounded by small vesicles, along with generalized lymphadenopathy at the time of presentation to the referral hospital. His blood sample was collected to perform serology for the diagnosis of Rickettsial disease. Which one of the following results in Weil-felix reaction will be diagnostic in this clinical setting:

- 1 High OX-2
- 2 High OX-19.
- 3 High OX-K.
- 4 High OX-19 and OX-2.

Answer is 3            PANICKAR 6TH/

This is a case of scrub typhus with classical clinical presentation. The classic case description includes an eschar at the site of chigger feeding, regional lymphadenopathy, and a maculopapular rash. After an incubation period of 6 to 21 days (usually 8 to 10 days), the onset of disease is characterized by fever, headache, myalgia, cough, and gastrointestinal symptoms. Severe cases typically include prominent encephalitis and interstitial pneumonia as key features of vascular injury. Scrub typhus is found in environments that harbor the infected chiggers, particularly areas of heavy scrub vegetation where the forest is regrowing after being cleared and along riverbanks.

On Weil-felix reaction scrub typhus shows

OX-K	OX-2	OX-19
+++	-	-

Q.201 Adenosine deaminase (enzyme) deficiency is associated with:

- 1 Severe combined immunodeficiency (SCID).
- 2 X-linked agammaglobulinemia.
- 3 Transient hypogammaglobulinemia of infancy.
- 4 Chronic granulomatous disease.

Answer is 1 R7th /201

Severe combined immunodeficiency (SCID) is inherited as both autosomal recessive and X-linked recessive form. Autosomal recessive form of SCID characterized by severe lymphopenia, the failure in T and B cell development. It is due to mutations in the RAG-1 or RAG-2 genes. About half of patients with autosomal recessive SCID are deficient in an enzyme involved in purine metabolism, adenosine deaminase (ADA), due to mutations in the ADA gene.

Q.202 Which of the following viral infections is transmitted by tick.

- 1 Japanese encephalitis.
- 2 Dengue fever.
- 3 Kyasanur forest disease (KFD).
- 4 Yellow fever.

Answer is 3 K Park P.S.M. 17th ed/543.

Hard tick	Soft tick
Tick typhus Viral encephalitis Viral fevers (KFD) Tularemia Tick paralysis Human babesiosis	Q fever Relapsing fever

Q.203 Atypical pneumonia can be caused by the following microbial agents except?

- 1 Mycoplasma pneumoniae.
- 2 Legionella pneumophila.
- 3 Human Corona virus.
- 4 Klebsiella pneumoniae.

Answer is 4 Robbins Pathology 7 ed/747

Common Causes of Community acquired atypical pneumonia are.

1) Mycoplasma pneumoniae	4) Viruses (RSV, Parainfluenza, influenza A & B, adenovirus, SARS). SARS is caused by human corona virus.
2) Chlamydia spp (Pneumoniae, Psittaci, trachomatis)	
3) Coxiella burnetti (Q fever)	
4) Legionella pneumophila	

Q.204 The serum concentration of which of the following human Ig G subclass is maximum?

- 1 IgG1.
- 2 IgG2.
- 3 IgG3.
- 4 IgG4.

Answer is 4 H16TH ED /1922.AN6TH ED/81

Ig G comprises approximately 75 to 85% of total serum immunoglobulin. The four Ig G subclasses are numbered in order of their level in serum, IgG1 being found in greatest amounts and IgG4 the least.

IgG1→65%	IgG3→8%
IgG2→23%	IgG4→4%

Q.205 Chlamydia trachomatis is associated with the following except:

- 1 Endemic trachoma.
- 2 Inclusion conjunctivitis.
- 3 Lymphogranuloma venereum.
- 4 Community acquired pneumonia.

Answer is 4 H16TH ED /1531

Disease caused by Chlamydia trachomatis

→Pneumonia, primarily in children and young adults,	→Recurrent respiratory infections in older adults
→Atherosclerotic cardiovascular disease	→Asthma and Sarcoidosis
→Trachoma→ A, B, Ba, and C serovars	→Sexually transmitted and perinatally acquired infections.→ D through K
→Lymphogranuloma venereum (LGV) and hemorrhagic proctocolitis.→ L1, L2, and L3	→ Inclusion conjunctivitis in young adult and children

Q.206  
The following

statements are true regarding Clostridium perfringens except:

- 1 It is the commonest cause of gas gangrene.
- 2 It is normally present in human faeces.
- 3 The principal toxin of C.perfringens is the alpha toxin.
- 4 Gas gangrene producing strains of C. perfringens produce heat resistant spores.

Answer is 4 PANICKAR 6TH/230

Clostridia are present in the normal colonic flora at concentrations of  $10^9$  to  $10^{10}$  per gram. *C. ramosum* is the most common and is followed in frequency by *C. perfringens* in colonizing clostridium. While most common colonizing organisms in colon are bacterioids.

*C. perfringens* is the most common of the clostridial species isolated from tissue infections (gas gangrene) and bacteremias.

*C. perfringens* is associated with food poisoning (type A) and enteritis necroticans (type C).

*C. perfringens* possesses at least 17 possible virulence factors. This species has been divided into five types (A through E) on the basis of four major lethal toxins:  $\alpha$ ,  $\beta$ ,  $\epsilon$ , and  $\theta$ . The  $\alpha$  toxin is a phospholipase C (lecithinase) that splits lecithin into phosphorylcholine and diglyceride. This is a major toxin and associated with gas gangrene. Gas gangrene producing strains of *C. perfringens* produce heat labile spores and get destroyed with boiling

207 The most common organism amongst the following that causes acute meningitis in an AIDS patients is:

1 *Streptococcus pneumoniae*.

2 *Streptococcus agalactiae*.

3 *Cryptococcus neoformans*.

4 *Listeria monocytogenes*.

Answer is 3 Harrison 16th /1116

The AIDS dementia complex, or HIV encephalopathy, is considered an AIDS-defining illness. AIDS

dementia complex is commonest CNS disorder in AIDS patient.

Among the more frequent opportunistic diseases that involve the CNS are toxoplasmosis, cryptococcosis, progressive multifocal leukoencephalopathy, and primary CNS lymphoma.

Toxoplasmosis is the most common opportunistic infection of CNS in AIDS patients. It is the most common cause of chorioretinitis in these patient, while CMV is the most common cause of retinitis in AIDS.

*C. neoformans* is the leading infectious cause of meningitis in patients with AIDS. It is the initial AIDS-defining illness in approximately 2% of patients and generally occurs in patients with CD4+ T cell counts  $<100/uL$ . Cryptococcal meningitis is particularly common in patients with AIDS in Africa.

Q.208 A bacterial disease that has been associated with the 3 “Rs” i.e., rats, ricefields, and rainfall is:

1 Leptospirosis.

2 Plague.

3 Melioidosis.

4 Rodent-bite fever.

Answer is 1 K Park P.S.M. 17th P (222)

- Leptospirosis is a zoonosis with a worldwide distribution. Water is an important vehicle in their transmission. Epidemics of leptospirosis may result from exposure to flood waters contaminated by urine from infected animals
- *Leptospira* are excreted in urine of infected animals for a long time. Rats, mice and voles particularly *R. novyboracensis* and *Mus musculus* are Reservoirs.
- Human infection is usually caused by occupational exposure to the urine of infected animals, eg agricultural and live stock farmers, worker in rice fields.
- Leisure time activities such as swimming and fishing also carry risks.
- *Leptospira* shed in urine and can survive for weeks in soil and water heavy rainfall can leads to high level of contamination of soil of that area. Potential contamination of water occurs.

Q.209 A child was diagnosed to be suffering from diarrhoea due to *Compylobacter jejuni*. Which of the following will be the correct environmental conditions of incubation of the culture plates of the stool sample:

- 1 Temperature of 42oC and micro-aerophilic.
- 2 Temperature of 42oC and 10% carbon dioxide.
- 3 Temperature of 37oC and micro-aerophilic.
- 4 Temperature of 37oC and 10% carbon dioxide.

Answer is 1 David Greenwood, Medical, Microbiology 16th edition/288

*Campylobacter* are Small spiral Gram negative with single flagellum at one or both pole. They are usually sensitive to O<sub>2</sub> and super oxide, yet O<sub>2</sub> is essential for growth, so micro-aerophilic condition must be provided for their cultivation. *Compylobacter jejuni* grow best at 42-43oC. Note, other *campylobacter* like enteritis grows best at 37oC temp.

Q.210 Which one of the following statements is true regarding *Chlamydia pneumoniae*:

- 1 Fifteen serovars have been identified as human pathogens.
- 2 Mode of transmission is by the airborne bird excreta.
- 3 The cytoplasmic inclusions present in the sputum specimen are rich in glycogen.
- 4 The group specific antigen is responsible for ithe production of complement fixing antibodies.

Answer is 4 Brooks medical microbiology ,23ed/chapter 28.

*Chlamydia pneumoniae* prduces the glycogen negative inclusion bodies that are much like of *Chlamydia psittaci* and are sulfonamide-resistant. Only one serovrar has discovered. Serology using the Microimmunofluroscent test is the bmost sensitve method for the detection of *Chlamydia pneumoniae* infection. This test is the species specific not the complement fixing antibody detection by complement fixation test. Because the complement fixing antibodies are against the group specific antigen so detection of these antibodies are not species specific. Mode of transmission is by the airborne bird excreta is seen in Ch. *Psittaci*.

Q.211 Which of the following ultrasound marker is associated with greatest increased risk for Trisomy 21 in fetus:

- 1 Echogenic foci in heart.
- 2 Hyperechogenic bowel.
- 3 Choroid plexus cysts.
- 4 Nuchal edema.

Answer is Williams /p 988

Risk associated with Down syndrome.

- 1) Nuchal fold ? 6 mm - 38%
- 2) Femur length - 34%
- 3) BPD/FL - 22%
- 4) Hyperechogenic bowel - 11%
- 5) Choroid plexus cyst - 0%

Q.212 The highest incidence of Gestational Trophoblastic Disease is in:

- 1 Australia.
- 2 Asia.
- 3 North America.
- 4 Western Europe.

Answer is 2 H 16th /588, Dutta 5TH /206



Gestational choriocarcinoma accounts for <1% of female gynecologic malignancies. In the United States, the incidence is about 1 per 1000 pregnancies; in Asia, 2 per 1000 pregnancies. The spectrum of disease ranges from benign hydatidiform mole to trophoblastic malignancy (placental-site trophoblastic tumor and choriocarcinoma).

A prior history of molar pregnancy is also a risk factor. Prior history of hydatidiform mole is a risk factor for choriocarcinoma.

Q.213 The smallest diameter of the true pelvis is:

- 1 Interspinous diameter.
- 2 Diagonal conjugate.
- 3 True conjugate.
- 4 Intertuberous diameter.

Answer is 2

Dutta 5TH / p 90

Inter spinous diameter is the smallest diameter of the true pelvis. It is approximately

Q.214 The most common pure germ cell tumor of the ovary is:

- 1 Choriocarcinoma.
- 2 Dysgerminoma.
- 3 Embryonal cell tumor.
- 4 Malignant Teratoma.

Answer is 2 Dahnert Radiological review manual 5th edi/1046.

COGDT 9TH /chapter 49

Malignant germ cell tumor of ovary comprises 7% of tumor.

- (a) Mature teratoma (10%) = the only benign variety and it is mixed tumor
- (b) dysgerminoma (1.9%)
- (c) immature Teratoma (Malignant Teratoma) (1.3%)
- (d) Endodermal sinus tumor (1%)
- (e) Malignant mixed germ cell tumor (.7%)
- (f) Choriocarcinoma (.1%)
- (g) Embryonal carcinoma (.1%)

Q.215 Infants of diabetic mother are likely to have the following cardiac anomaly:

- 1 Coarctation of aorta.
- 2 Fallot's tetralogy
- 3 Ebstein's anomaly.
- 4 Transposition of great arteries.

Answer is 2 Famarof & Martin 's Neonatal-Perinatal Medicine 7th Ed vol -1,Pg-282.

The congenital anomaly most specific for pregnant woman with DM is caudal dysplasia (sacral agenesis), which occurs 200-400 times more often in diabetic women.) This lesion (sacral agenesis) is most specific but not more common than Neural tube defect and Congenital heart defects.

Malformations of CNS that are more common in decreasing frequency are

- Neural tube defect (open myelomeningocele)
- Anencephaly
- Holoprocencephaly

Risk of Cardiac malformation such as TGA and VSD are increased 5 fold. TGA is the most

common congenital cardiac anomaly in diabetic infants.

Q.216 Which one of the following is the ideal contraceptive for a patient with heart disease?

- 1 IUCD.
- 2 Depoprovera.
- 3 Diaphragm.
- 4 Oral contraceptive pills.

Answer is 2          Dutta /p 296

Barrier method of contraceptive (condom) is the ideal contraceptive - only barrier method given in choice is diaphragm.

Q.217 The karyotype of a patient with Androgen Insensitivity Syndrome is:

- 1 46xx.
- 2 46xy.
- 3 47xxy.
- 4 45x0.

Answer is 2          Robbins 7th/181, SHAWS 13TH /105  
HARRISON 15th/chapter-338

Complete testicular feminization (also called complete androgen insensitivity) is a common form of male pseudohermaphroditism; It is the third most common cause of primary amenorrhea after

gonadal dysgenesis(Turner syndrome) and congenital absence of the vagina (Mayer-Rokitansky-Kuster-Hauser syndrome). The karyotype is 46,XY, and the mutation is X-linked.

Reifenstein syndrome (also called partial androgen insensitivity) is the term applied to forms of incomplete male pseudohermaphroditism

Q.218 The following drug is not helpful in the treatment of ectopic pregnancy:

- 1 Methotrexate.
- 2 Misoprostol.
- 3 Actinomycin-D.
- 4 RU 486.

Answer is 2          Williams' 21st/898

Novak's Gynecology 13th ed/530

Methotrexate is a antineoplastic drug that acts as a folic acid antagonist and highly effective against rapidly proliferating trophoblast. single dose treatment is easier to administer and monitor than variable dose methotrexate therapy, but it is associated with high failure rate. A paper in case of failure second dose of methotrexate is given.

A five-day course of intravenous actinomycin results in complete resolution of an ectopic pregnancy even in case of methotrexate failure.

RU 486(Mifepristone) combined with methotrexate is safe and effective treatment without obvious side effects. Drugs used direct injections are

Methotrexate	Prostaglandins $F_{2\alpha}$ $E_2$
Hyperosmolar glucose	KCL

Misoprostol is Prostaglandins E1 analogue. It is not used in ectopic pregnancy.

219 The best period of gestation to carry out chorion villous biopsy for prenatal diagnosis is?

- 1 8-10 weeks
- 2 10-12 weeks
- 3 12-14 weeks
- 4 14-16 weeks

Answer is 2      Dutta 5th /p 113

Williams 21st/ch.37

Chorionic villus sampling is the second most common procedure for genetic prenatal diagnosis. It is routinely performed at about 10 to 12 weeks of gestation, it allows for an earlier detection of abnormalities and a safer pregnancy termination, because there is an increased association of limb defects (Oromandibulo digital dysplasia) when the procedure is performed before the 9th week. So it is not done before the 9th week.

Q.220 Which one of the following biochemical parameters is the most sensitive to detect open spina bifida?

- 1 Maternal serum alpha fetoprotein.
- 2 Amniotic fluid alpha fetoprotein.
- 3 Amniotic fluid acetyl cholinesterase.
- 4 Amniotic fluid glucohexaminase.

Answer is 3      Rodecks & Whittle's  
Fetal Medicine, Pg-377

When amniotic fluid acetyl cholinesterase (AChE) measurement is available for diagnostic purposes, nearly all of the false positive amniotic fluid AFP measurements could be identified. So it is the most sensitive test for detection of open spina bifida. Elevation of Amniotic fluid alpha fetoprotein level without increased acetyl cholinesterase can be due to other etiology or from blood contamination.

Q.221. Risk of preterm delivery is increased if cervical length is:

1. 2.5 cm.
2. 3.0 cm.
3. 3.5 cm.
4. 4.0 cm.

Answer is 1      Williams 21st/701  
Preterm birth, FUCHS 2nd edition/30-31

Mean cervical length at 24 weeks was 35 mm, and those women with progressively shorter cervixes experienced increased rates of preterm birth.

When the cervical length measured by vaginal ultrasound was less than 50th percentile (< 37 mm), risk of preterm delivery was increased 3.7 fold.

If manual measured cervix was shorter than the 50th percentile (18 mm), premature birth was increased 2.9 fold.

Q.222. Diagnosis of beta Thalassemia is established by:

1. NESTROFT Test.
2. Hb A1C estimation.
3. Hb electrophoresis.
4. Target cells in peripheral smear.

Q.223. All are the risk factors associated with macrosomia except:

1. Maternal obesity.
2. Prolonged Pregnancy.
3. Previous large infant.
4. Short Stature.

Answer is 4

Williams 21st/ 759

Factors that favor the likelihood of large fetus

- 1) Obesity
- 5) Male fetus
- 2) Multiparity
- 6) Previous infant > 4 kg
- 3) Prolonged gestation
- 7) Race and ethnicity
- 4) Maternal age.

Q.224. Which of the following statements is incorrect in relation to pregnant women with epilepsy?

1. The rate of congenital malformation is increased in the offspring of women with epilepsy.
2. Seizure frequency increases in approximately 70% of women.
3. Breast feeding is safe with most anticonvulsants.
4. Folic acid supplementation may reduce the risk of neural tube defect.

Answer is 2

Williams 21st/1408-1409

During pregnancy increased seizure frequency seen in 35%, while decreased frequency in 15% and no change in 50%. Women taking antiepileptic drugs should receive the Folic acid supplementation as most of these agents deplete this nutrient. Folic acid supplementation reduces the risk of neural tube defect. The rate of congenital malformation is increased in the offspring of women with epilepsy even when patient is not taking the antiepileptics.

Q.225. All are the causes of intrauterine growth retardation except:

1. Anemia.
2. Pregnancy induced hypertension.
3. Maternal heart disease.
4. Gestational diabetes.

Answer is 4 Williams 21st / 751-752, Dutta 5th / 499

Maternal conditions commonly associated with I.U.G.R.

- 1) Renal disease
- 2) Vascular disease like eclampsia, pre-eclampsia etc.
- 3) Chronic hypoxia
- 4) Maternal anaemia
- 5) Placental insufficiency
- 6) Multiple pregnancy
- 7) Antiphospholipid antibody syndrome.

Pre-eclampsia, heart disease, malnutrition may be life threatening and important cause of fetal growth retardation.

Note - Diabetic mother have risk of macrosomia in place of I.U.G.R

Q.226. Misoprostol has been found to be effective in all of the following except:

1. Missed abortion.
2. Induction of labour.
3. Menorrhagia.
4. Prevention of post-partum hemorrhage (PPH).

Q.227. All of the following appear to decrease hot flushes in menopausal women except:

1. Androgens.
2. Raloxifene.
3. Isoflavones.
4. Tibotone.

Answer is 2

CMDT2004/1140

- Androgen deficiency contributes to hot flushes; loss of libido and sexual hair, muscle atrophy, and osteoporosis, selected women may be treated with low dose methyl testosterone. Androgen should not be given to women with liver disease; during pregnancy or breast-feeding.
- Raloxifene alternative to estrogen in postmenopausal women to prevent osteoporosis. But it does not reduce hot flushes, vaginal dryness, skin wrinkling, or breast atrophy. While it can lead to hot flushes as a side effect.
- Raloxifene increases risk of venous thromboembolism.
- Tibolone have mixed estrogenic, progestogenic and weak androgenic activity, it reduces the climacteric-related complication.
- Isoflavons - are phytoestrogen (soy phytoestrogen occurs naturally)
  - Bind weakly to E.R.? but strongly to E.R.B.
  - Daily intake of Soy proteins reduces hot flushes by about 45% within 12 weeks.

Q.228. In a case of Dysgerminoma of ovary one of the following tumor markers is likely to be raised:

1. Serum HCG.
2. Serum alphafetoprotein.
3. Serum lactic dehydrogenase.
4. Serum inhibin.

Malcolm Coppleson,

Gynecologic Answer is 3      Oncology 2nd ed/918-921.

Lipincott - Roven publication, S - Jean Emans, Marc

R - Pediatric and adolescent gynecology 4th ed./575.

Dysgerminoma is most common malignant germ cell tumor of the ovary, representing 2% of all ovarian malignancies.

LDH, PLAP, and CA 125 may be elevated and in some instances can serve as tumor marker. LDH in particular has been successful in predicting recurrence in testicular seminoma and dysgerminoma.

LDH is elevated in some patient with dysgerminoma, and the levels and the isoenzyme pattern (LDH-1 and LDH-2) may be useful in suggesting the diagnosis preoperatively.

Q.229. Use of one of the following vaccination is absolutely contraindicated in pregnancy:

1. Hepatitis-B.
2. Cholera.
3. Rabies.
4. Yellow fever.

Q.230. The most common cause of secondary amenorrhoea in India is:

1. Endometrial tuberculosis.
2. Premature ovarian failure.
3. Polycystic ovarian syndrome.
4. Sheehan's syndrome.

Q.231. In Klippel-Feil syndrome, the patient has all of the following clinical features except:

1. Low hair line.
2. Bilateral Neck webbing.
3. Bilateral shortness of sternomastoid muscles.
4. Gross limitations of neck movements.

Q.232. The most common sequelae of tuberculous spondylitis in an adolescent is:

1. Fibrous Ankylosis.
2. Bony-Ankylosis.
3. Pathological dislocation.
4. Chronic osteomyelitis.

Q.233. In Radionuclide imaging the most useful radio pharmaceutical for skeletal imaging is:

1. Gallium 67 ( $^{67}\text{Ga}$ ).
2. Technetium-sulphur-colloid ( $^{99\text{m}}\text{Tc-Sc}$ ).
3. Technetium-99m ( $^{99\text{m}}\text{Tc}$ ).
4. Technetium-99m linked to Methylene disphosphonate ( $^{99\text{m}}\text{Tc-MDP}$ ).

Q.234. Heberden's arthropathy affects:

1. Lumbar spine.
2. Symmetrically large joints.
3. Sacroiliac joints.
4. Distal interphalangeal joints.

Q.235. Subtrochanteric fractures of femur can be treated by all of the following methods except:

1. Skeletal traction on Thomas' splint.
2. Smith Petersen Nail.
3. Condylar blade plate.
4. Ender's nail.

Q235. Ref- Chapman's orthopaedic surgery 3rd Ed ,Pg 655-660

-Locked medullary nails were used for closed nailing of proximal femoral fractures. All closed adult subtrochanteric fractures below the level of lesser trochanter can be safely nailed with first generation nail, regardless of the fracture pattern or degree of comminution

-Ender's nail has particular advantage in unusual situations where the soft tissues around the hip preclude the use of any device that enters for hip, and ender's nail can be inserted through the knee

-Condylar blade plate is used for anatomic reduction and stable fixation of all fragments

Q.235. Apley's Orthopedics 8th ed/694

Chapman's orthopedic surgery 3rd ed/653.

Treatment of subtrochanteric fracture

- Open reduction and internal fixation is treatment of choice.
- Compression (Dynamic) Hip screw and plate is satisfactory.
- Intramedullary nail are equally good for stabilization
- Devices used in subtrochanteric fracture are -
  - 1)Locked nail (interlocking nail) - Altanail technique is reamed locked intramedullary nailing.
  - 2)Zickel's nail
  - 3)Ender nail
  - 4)95o blade plate.
  - 5)95o dynamic condylar screw.
- There has been nearly a complete elimination of nonoperative treatment in adult and increase in operative treatment of sub-trochanteric fracture.

Answer is (1).

Q.236. All of the following are true about fracture of the atlas vertebra, except:

1. Jefferson fracture is the most common type.

2. Quadriplegia is seen in 80% cases.
  3. Atlantooccipital fusion may sometimes be needed.
  4. CT scans should be done for diagnosis.
236. Apley's Orthopedics 8th ed/650.

Fracture atlas -

- Jefferson fracture.
  - Usually no neurological deficit.
  - Fracture seen on open mouth view.
  - CT scan is particularly helpful.
  - Undisplaced fracture - Treated with semi-rigid collar or halo vest until fracture unite.
  - If sideways spreading of lateral mass ( $> 7$  mm on open mouth view) or ruptured transverse ligament or unstable injury - treated with halo cast for several weeks.
  - If persisting instability on X-ray - a Posterior C1-2 (atlanto axial) arthrodesis is considered.
  - Fracture of atlas are associated with injury elsewhere in cervical spine in upto 50% of cases.
- Odontoid fracture and hangman's fracture should be excluded.

CAMPBELL'S operative Orthopedics 9th ed/2722  
Chapman's Orthopaedic Surgery 3rd ed/3674-77.

- The initial description of C1 arch was given by Jefferson (so fracture C1 arch in whole can be said Jefferson fracture). But typical Jefferson fracture is type III fracture, which having fracture of both anterior and posterior arch of atlas. It is called the burst fracture (Jefferson fracture), which is characterized by 4 fracture - 2 in posterior arch and 2 in anterior arch.
- However most common injury is type I fracture which is isolated posterior arch fracture.
- It is result from the hyperextension - axial loading injury.
- Second M/c fracture is lateral mass fracture.
- Typical Jefferson fracture is 3rd m/c fracture.

Hence only correct choice is (4).

But best answer of this question is (2), because neurological deficit is seen in atlantoaxial dislocation (even if it is also severe).

Q.237. A 30 year old man had road traffic accident and sustained fracture of femur. Two days later he developed sudden breathlessness. The most probable cause can be:

1. Pneumonia.
2. Congestive heart failure.
3. Bronchial asthma.
4. Fat Embolism.

Q.238. A 45 year old was given steroids after renal transplant. After 2 years he had difficulty in walking and pain in both hips. Which one of the following is most likely cause?

1. Primary Osteoarthritis.
2. Avascular necrosis.
3. Tuberculosis.
4. Aluminum toxicity.

Q.239. All of the following are branches of the external carotid artery except:

1. Superior thyroid artery.
2. Anterior Ethmoidal artery.

3. Occipital artery.
4. Posterior auricular artery.

239. B.D. Chaurusiya Head and Neck ed. /p 103 and 87

Branches of external carotid A

- (A) Anterior - Sup. thyroid, lingual and facial
- (B) Posterior - occipital, post. auricular
- © Medial - ascending pharyngeal
- (d) Terminal - Maxillary and superficial temporal A

- Anterior ethmoidal A is branch of ophthalmic A, this is branch of interior carotid A.

Q.240. All are true for Gradenigo's syndrome except:

- 1.It is associated with conductive hearing loss.
- 2.It is caused by an abscess in the petrous apex.
- 3.It leads to involvement of the Cranial nerves V and VI.
- 4.It is characterized by retro-orbital pain.

Q240. Ref-Diseases of Ear, Nose & Throat,3rd Ed,P L Dhingra,Pg-103

Gradenigo Syndrome is the classical presentation of petrositis & consists of triad of

- a.External rectus palsy (vi nerve palsy)
- b.Deep seated ear or retro-orbital pain(vth nerve involvement)
- c.Persistent ear discharge-ie petrositis

Hence the answer is 1

Q240. Ref-Diseases of Ear, Nose & Throat. 3rd edition, P.L.Dhingra Gradenigo's syndrome is the classical presentation of petrositis & consists of triad of:

- 1.External rectus palsy (VIth nerve palsy)
- 2.Deep-seated ear or retro-orbital pain (Vth nerve involvement).
- 3.Persistent ear discharge-which points to petrositis.

Q.241. The most common and earliest manifestation of carcinoma of the glottis is:

1. Hoarseness.
2. Haemoptysis.
3. Cervical lymph nodes.
4. Stridor.

241. Dahnert's radiological review manual 5th edition/382.

- Glottic C.A is most common type of C.A. larynx.
- Earliest symptom is hoarseness.
- M/C symptom is hoarseness in C.A. Glottis.
- Supraglottic carcinoma is detected late due to minimal symptomatology.

Answer - (1).

Q.242. Abbey-Estlander flap is used in the reconstruction of:

1. Buccal mucosa.
2. Lip.
3. Tongue.
4. Palate.



Q.243. Androphonia can be corrected by doing:

1. Type 1 Thyroplasty.
2. Type 2 Thyroplasty.
3. Type 3 Thyroplasty.
4. Type 4 Thyroplasty.

Q243 . Ref –ENT,Head & Neck Sur 22nd Ed- Vol-3,Pgs 2072,2089-90.

Isshiki categorized laryngeal phonosurgery in to four types based on Functional alteration of vocal folds

-medial displacement (type-1 thyroplasty)

-lateral displacement (type-2)

-shortening or relaxation (type-3)

-elongation or tensioning procedures (type-4)

-lengthening procedure (type-4) have been advocated for vocal fold bowing

resulting from aging or trauma , post-surgical defects, androphonia & gender transformation

-type –3 for adductor spasmodic dysphonia, mutational falsetto & gender transformation.

Ans-D

Q.244. In which one of the following perineural invasion in head and neck cancer is most commonly seen?

1. Adenocarcinoma.
2. Adenoid cystic carcinoma.
3. Basal Cell Adenoma.
4. Squamous cell carcinoma.

244. Robbin/s Pathology

Dahnert radiological review manual 5th eds/369

- Adenoid cystic C.A. (Cylindroma)

40-70 yr age group, M=F

- Most common malignant neoplasms of minor salivary gland (Hard Palate is commonest site)

- This tumor have propensity for perineural spread along facial nerve.

Q.245. Use of Seigel's speculum during examination of the ear provides all except:

1. Magnification.
2. Assessment of movement of ithe tympanic membrane.
3. Removal of foreign body from the ear.
4. As applicator for the powdered antibiotic of ear.

Textbook of ENT by Mohd. Maqbool 10th ed/26

- Speculum consists of a 10 diopter lens and a side to be connected with a rubber bulb.

- An air tight system is produced in canal and pressure is increased by bulb.

- Speculum is useful for the following reason -

1) It gives a magnified view of the membrane

2) It is helpful to assess the mobility of the membrane.

3) The speculum is used to elicit the fistula sign.

4) By varying the pressure, discharge through the perforation can be sucked out as well as medication can be put into the middle ear.

Hence answer is (3).

Q.246. Blood specimen for neonatal thyroid screening is obtained on:

1. Cord blood.
2. 24 hours after birth.
3. 48 hours after birth.
4. 72 hours after birth.

Q.247. A child with recurrent urinary tract infections is most likely to show:

1. Posterior urethral valves.
2. Vesicoureteric reflux.
3. Neurogenic bladder.
4. Renal and ureteric calculi.

Q.248. The appropriate approach to a neonate presenting with vaginal bleeding on day 4 of life is:

1. Administration of vitamin K.
2. Investigation for bleeding disorder.
3. No specific therapy.
4. Administration of 10ml/kg of fresh frozen plasma over 4 hours.

O.P. Ghai Pediatrics 5th ed./125

Answer is (3)

Menstrual like bleeding may occur from 3rd to 7th day of life this is attributed to transplacental passage of hormones and estrogen withdrawal after birth, no therapy is required.

Q.249. Which one of the following drugs is used for fetal therapy of congenital adrenal hyperplasia?

1. Hydrocortisone.
2. Prednisolone.
3. Fludrocortisone.
4. Dexamethasone.

249.- Fetal medicine, Charles H. Rodeck 1st ed./831.

- To prevent the birth of virilized females, Evans et al. First administered dexamethasone at a dose of .25 mg q.i.d. to a mother known to be a risk of CAH.

- It is currently recommended to start the therapy at 7th weeks of gestation.

Fima Lifschiz - Pediatric endocrinology 3rd ed/315.

- Px with dexamethasone was recently employed in pregnancies at risk for 21-hydroxylase deficiency.

- The current recommendation is to treat the mother with a pregnancy at risk for 21-OH deficiency with dexamethasone in a dose of .5 mg TDS as soon as pregnancy is recognized.

Q.250. The coagulation profile in a 13-year old girl with Menorrhagia having von Willebrands disease is:

1. Isolated prolonged PTT with a normal PT.
2. Isolated prolonged PT with a normal PTT.
3. Prolongation of both PT and PTT.
4. Prolongation of thrombin time.

Q.251. All of the following are true about manifestations of vitamin E deficiency except:

1. Hemolytic anemia.
2. Posterior column abnormalities.
3. Cerebellar ataxia.
4. Autonomic dysfunction.

Q.252. Differential expression of same gene depending on parent of origin is referred to as:

1. Genomic imprinting.
2. Mosaicism.
3. Anticipation.
4. Nonpenetrance.

Q.253. The chances of having an unaffected baby, when both parents have achondroplasia, are:

1. 0%.
2. 25%.
3. 50%.
4. 100%.

Q.254. All of the following therapies may be required in a 1-hour-old infant with severe birth asphyxia except:

1. Glucose.
2. Dexamethasone.
3. Calcium gluconate.
4. Normal saline.

254. O.P. Ghai, Essential of Pediatrics 5th ed/153.

- 1) Maintain temperature
- 2) Provide O<sub>2</sub>/ventilation as required.
- 3) Ensure normal B.P: Volume expanders, dopamine, dobutamine.
- 4) Acidosis, hypoglycemia, hypocalcemia needs correction
- 5) Treat seizures.

Dexamethasone has no role in resuscitation of asphyxiated newborn.

When asphyxia occurs prenatally then high level of circulating steroids already leads to lung maturation.

Q.255. The most common leukocytoclastic vasculitis affecting children is:

1. Takayasu disease.
2. Mucocutaneous lymph node syndrome (Kawasaki disease)
3. Henoch Schonlein purpura.
4. Polyarteritis nodosa.

255. Anderson Pathology 10th ed./1433

- Small vessel vasculitis - K/a leukocytoclastic vasculitis.

- The incidence of Henoch - Schonlein Purpura Peaks around 5 yr of age and is most common type of vasculitis of children.

- d/d of leukocytoclastic vasculitis -

- 1) H.S.P.

- 2) Microscopic polyangitis
- 3) Cryoglobulinemic vasculitis
- 4) Wegener's granulomatosis
- 5) Churg Strauss syndrome
- 6) Drug induced vasculitis
- 7) Neisseria induced vasculitis.

according to Harrison 15th ed. ?

- Anaphylactoid Purpura = Henoch - Schonlein purpura.

Q.256. A four year old boy was admitted with a history of abdominal pain and fever for two months, maculopapular rash for ten days, and dry cough, dyspnea and wheezing for three days. On examination, liver and spleen were enlarged 4 cm and 3 cm respectively below the costal margins. His hemoglobin was 10.0 g/dl, platelet count  $37 \times 10^9/L$ , which included 80% eosinophils. Bone marrow examination revealed a cellular marrow comprising 45% blasts and 34% eosinophils and eosinophilic precursors. The blasts stained negative for myeloperoxidase and non-specific esterase and were positive for CD19, CD10, CD22 and CD20.

Which one of the following statements is not true about this disease?

1. Eosinophils are not part of the neoplastic clone.
2. t(5:14) rearrangement may be detected in blasts.
3. Peripheral blood eosinophilia may normalize with chemotherapy.
4. Inv (16) is often detected in the blasts and the eosinophils.

256. William's Hematology 6th ed/1056, 1051.

CD19, CD10, CD22 and CD20 are marker of b cell origin . so it is a lymphoid leukemia not myeloid one.

Q.257. Kidney biopsy from a child with hemolytic uremic syndrome characteristically most likely presents features of:

1. Thrombotic microangiopathy.
2. Proliferative glomerulonephritis.
3. Focal segmental glomerulosclerosis.
4. Minimal change disease.

Q.258. The classification proposed by the International Lymphoma Study Group for non-Hodgkin's lymphoma is known as:

1. Kiel classification.
2. REAL classification.
3. WHO classification.
4. Rappaport classification.

258. William's hematology 6th ed/1208

- In 1993 the International Lymphoma Study Group began a year long effort to establish a new classification the REAL classification (Revised European - American lymphoma).

Q.259. One of the intestinal enzymes that is generally deficient in children following an attack of severe infectious enteritis is:

1. Lactase.
2. Trypsin.
3. Lipase.

#### 4. Amylase.

Q.260. A newborn presented with bloated abdomen shortly after birth with passing of less meconium. A full-thickness biopsy of the rectum was carried out. Which one of the following rectal biopsy findings is most likely to be present?

1. Fibrosis of submucosal.
2. Hyalinisation of the muscular coat.
3. Thickened muscularis propria.
4. Lack of ganglion cells.

Q.261. All of the following features are seen in the viral pneumonia except:

1. Presence of interstitial inflammation.
2. Predominance of alveolar exudates.
3. Bronchiolitis.
4. Multinucleate giant cells in the bronchiolar wall.

261. Pathologic basis of diseases Robbins ed. /751.

The term atypical pneumonia denotes the moderate amount of sputum, no physical finding of consolidation, only moderate elevation of W.B.C. lack of alveolar exudate (answer).

Morphology of atypical pneumonia -

- Predominant interstitial nature of inflammatory reaction.
- Super imposed bacterial infection causes ulcerative bronchitis and bronchiolitis.
- Epithelial giant cells with intranuclear or intra-cytoplasmic inclusion may be present in cytomegalic inclusion diseases, other viruses produce cytopathic changes.

Hence answer is (2).

Q.262. Aschoff's nodules are seen in:

1. Subacute bacterial endocarditis.
2. Libman-Sacks endocarditis.
3. Rheumatic carditis.
4. Non-bacterial thrombotic endocarditis.

262. Path. Robbins /593

Aschoff bodies - These consist of foci of swollen eosinophilic collagen surrounded by lymphocytes (Primarily T cells), occasional plasma cells, and plump macrophages called Antischkow cells (Pathognomonic for RF). These disposed in a central, slender, wavy ribbon (hence the designation "Caterpillar cells").

Some of the larger macrophages becomes multinucleated to form aschoff giant cells.

Answer Rheumatic carditis.

Q.263. Pulmonary surfactant is secreted by:

1. Type I pneumocytes.
2. Type II pneumocytes.
3. Clara cells.
4. Bronchial epithelial cells.

263. Robbin /713.

Alveolar epithelium - contains a continuous layer of 2 principal cell types:

Flattened, plate like type I pneumocyte covering 95% of surface.

Type II - Globular, only 5% of surface area.

They are the source of pulmonary surfactant. Surfactant contained in osmiophilic lamellar bodies.

Q.264. Which one of the following conditions commonly predisposes to colonic carcinoma?

1. Ulcerative colitis.
2. Crohn's disease.
3. Diverticular disease.
4. Ischaemic colitis.

264. Robbins /848.

- incidence of cancer of git in patients with long standing progressive C.D, with a five to six - fold increased risk over normal population. However the risk of cancer in Crohn's disease is considerably less than in patients with chronic U.C.

Hence answer is (1).

Ulcerative colitis

Important point to be remembered -

- Crypt abscess seen in U.C.
- Lead pipe appearance of Colon - U.C

Q.265. Fibrinoid necrosis may be observed in all of the following, except:

1. Malignant hypertension.
2. Polyarteritis nodosa.
3. Diabetic glomerulosclerosis.
4. Aschoff's nodule.

265. Robbins 593,594, 1008, 539

- The myocardial involvement - Myocarditis - takes the form of scattered Aschoff bodies, often perivascular. Concomitant involvement of the endocardium and the left sided valves by inflammatory foci typically result in fibrinoid necrosis within Cusps or along the cord.

- Morphology of malignant hypertension in kidney -
- Flea bitten appearance
- Fibrinoid necrosis of arterioles
- Onion skinning of intima.
- Morphology of Polyarteritis nodosa (PAN)
- transmural inflammation of arterial wall
- fibrinoid necrosis
- fibrous thickening of vessel wall

Hence answer is (3).

Q.266. All of the following statements are true regarding reversible cell injury, except:

1. Formation of amorphous densities in the mitochondrial matrix.
2. Diminished generation of adenosine triphosphate (ATP).
3. Formation of blebs in the plasma membrane.
4. Detachment of ribosomes from the granular endoplasmic reticulum.

266. Robbins /19

- Persistent or excessive injury causes irreversible injury.
- 1) Extensive damage of cellular membrane
  - 2) Swelling of liposomes
  - 3) Vacuolization of mitochondria with reduced capacity to generate ATP.

Note - amorphous density in mitochondrial matrix is a feature of reversible injury.

Hence answer is (3).

Q.267. Which of the following statements pertaining to leukemia is correct?

1. Blasts of acute myeloid leukemia are typically sudan black negative.
2. Blasts of acute lymphoblastic leukemia are typically myeloperoxidase positive.
3. Low leucocyte alkaline phosphatase score is characteristically seen in blastic phase of chronic myeloid leukemia.
4. Tartarate resistant acid phosphatase positivity is typically seen in hairy cell leukemia.

.267. Wiernik Neoplastic disease of blood 3rd ed/68.

- The most consistent and diagnostic abnormality of granulocytes in CML is low or absent L.A.P.  
The L.A.P is elevated in Polycythemia vera and myeloid metoplasia.

Note - The LAP tends to rise during drug induced demission of CML and in blastic phase.

- Low LAP also seen in P.N.H.
- High LAP seen in - Polycythemia vera and myeloid metaplasia.
- TRAP (Tartarate resistant acid phosphatase positivity typically seen in hairy cell leukemia.
- Blasts of AML (not ALL) - Myeloperoxidase positive
- Blasts of ALL are sudan negative.
- Another frequently asked important question -  
Accelerated phase CML 1) Peripheral blast > 100,000/mm<sup>3</sup>  
2) Characterized by
  - Progressive splenomegaly.
  - Basophilia
  - Platelet count aberration, including thrombocytosis.
- 3) This phase usually last for 3-9 months.

Q.268. In which of the following conditions bilateral contracted kidneys are characteristically seen?

1. Amyloidosis.
2. Diabetes mellitus.
3. Rapidly progressive (crescentic) glomerulonephritis.
4. Benign nephrosclerosis.

Q.269. All of the following CSF findings are present in tuberculous meningitis, except:

1. Raised protein levels.
2. Low chloride levels
3. Cob web formation.
4. Raised sugar levels.

269. O.P. Ghai Pediatrics 5th ed/395

- Sugar level is normal or decreased in T.B.M. it is not raised in any bacterial or fungal meningitis.
  - Cob web formation in CSF is feature of T.B.M. due to excess protein within it.
  - Cl decreased in csf (<600 MG/Dl)
- Hence answer is (4).

Q.270. All of the following vascular changes are observed in acute inflammation, except:

1. Vasodilation.
2. Stasis of blood.
3. Increased vascular permeability.
4. Decreased hydrostatic pressure.

270. Robbins /50

Vascular changes in acute inflammation -

- 1) Vasodilation is one of earliest manifestation.
  - 2) It followed by increased vascular permeability
  - 3) Loss of fluid result in concentration of red cells in small vessels and increased viscosity of blood - blood flow slower - a condition term as stasis.
  - 4) Colloid osmotic pressure is decreased.
  - 5) While hydrostatic pressure is increased.
- Hence answer is (4).

Q.271. The subtype of Hodgkin's disease, which is histogenetically distinct from all the other subtypes, is:

1. Lymphocyte predominant.
  2. Nodular sclerosis.
  3. Mixed cellularity.
  4. Lymphocyte depleted.
271. Robbins /686

Now WHO Classification recognizes 5 subtype of H.L. In first 4 type (nodular sclerosis, mixed cellularity, lymphocyte rich, and lymphocyte depletion) the Reed Sternberg Cells have a similar immunophenotype; as these 4 are often clumped as classical form of H.L.

In lymphocyte predominance HL, Reed sternberg cells have a characteristic B cell - immunophenotype distinct from that of ithe classical HL subtype.

Hence answer is (1).

Q.272. In apoptosis, Apaf-1 is activated by release of which of the following substances from the mitochondria?

1. Bcl-2.
  2. Bax.
  3. Bcl-XI.
  4. Cytochrome C.
272. Robbins /30

Cell under stress or deprived of survival signals

↓

Release of Bcl-2 and/or Bcl - x from mitochondria

↓

Now increased permeability of mitochondria

↓

Cytochrome - C comes out of mitochondria binds to ApaF-I in cytosol.

↓

This activated complex activate the Caspase - 9 and apoptosis starts.

Hence answer is (4).

Q.273. Which type of amyloidosis is caused by mutation of the transthyretin protein?

1. Familial Mediterranean fever.
2. Familial amyloidotic polyneuropathy.
3. Dialysis associated amyloidosis.
4. Prion protein associated amyloidosis.

Q.274. In familial Mediterranean fever, the gene encoding the following protein undergoes mutation:

1. Pyrin.
2. Perforin.



3. Atrial natriuretic factor.
4. Immunoglobulin light chain.

Q.275. Which of the following statements is not true?

1. Patients with IgD myeloma may present with no evident M-spike on serum electrophoresis.
2. A diagnosis of plasma cell leukemia can be made if circulating peripheral blood plasmablasts comprise 14% of peripheral blood white cells in a patient with white blood cell count of  $11 \times 10^9/L$  and platelet count of  $88 \times 10^9/L$ .
3. In smoldering myeloma plasma cells constitute 10-30% of total bone marrow cellularity.
4. In a patient with multiple myeloma, a monoclonal light chain may be detected in both serum and urine.

Neoplastic disease of blood 3rd ed/497-498.

Peter H, Wiernip, George P, Canellos

#### PLASMA CELL LEUKEMIA

Diagnosis is made when atypical plasma cells in peripheral blood at least 20% of the differential count.

#### SMOLDERING MULTIPLE MYELOMA

Diagnosis depends on presence of serum M protein  $<30 \text{ g/L}$ .

$<10\%$  atypical plasma cells in bone marrow smears.

Absent of symptom, anemia and skeletal lesion.

#### MONOCLONAL GAMMOPATHY OF UNKNOWN SIGNIFICANCE

Circulating atypical plasma cell also  $<10\%$ .

Definition of leukemia (my) ?  $>20\%$  of blast cell must be there.

Myelodysplastic syndrome - also K/a smouldering leukemia because it is having blast cells  $<30\%$  but  $>10\%$ . So it is also K/a preleukemic leukemia.

Like smouldering leukemia the smouldering myeloma may have 10-20% plasma cells. But when the

ward leukemia is used, it always means that cells are  $>20\%$  of circulating W.B.C.

- Williams hematology 6th ed/1284 ? a small proportion of patient have non-secretory myeloma in which the neoplastic cells do not produce significant amount of monoclonal immunoglobulins.

Q.276. In-situ DNA nick end labeling can quantitate:

1. Fraction of cells in apoptotic pathways.
2. Fraction of cells in S phase.
3. p53 gene product.
4. bcr/abl gene.

Q.277. Which one of the following serum levels would help in distinguishing an acute liver disease from chronic liver disease?

1. Aminotransaminase.
2. Alkaline phosphatase.
3. Bilirubin.
4. Albumin.

Serum albumin is synthesized exclusively by hepatocytes. Serum albumin has a long half-life: 15 to 20 days, with approximately 4% degraded per day. Because of this slow turnover, the serum albumin is not a good indicator of acute or mild hepatic dysfunction; only minimal changes in the serum albumin are seen in acute liver conditions such as viral hepatitis, drug-related hepatotoxicity, and obstructive jaundice. In hepatitis, albumin levels below 3 g/dL should raise the possibility of chronic liver disease.

Hypoalbuminemia is more common in chronic liver disorders such as cirrhosis and usually reflects severe liver damage and decreased albumin synthesis.

One exception is the patient with ascites in whom synthesis may be normal or even increased, but levels are low because of the increased volume of distribution

Q.278. Which one of the following stains is specific for Amyloid?

1. Periodic Acid schif (PAS).
2. Alzerian red.
3. Congo red.
4. Von-Kossa.

Anderson's Pathology /p.455

Staining characteristics of amyloid

Stain	Appearance of amyloid	Diagnostic utility
H&E/HPS*	Pink, hyaline, amorphous	Nonspecific
Methyl violet or crystal violet	Metachromasia	Nonspecific
Thioflavine T or thioflavine S	Secondary fluorescence under ultraviolet radiation	Nonspecific but is the most sensitive screening test
Sulfated Alcian blue	Blue-green	Nonspecific but may be useful as a screening test
Congo red	Red-green birefringence under polarized light	Definitive diagnostic test
Immunohistochemistry using antibody specific for fibril protein	Positive immunoreactivity	Allows classification of type of amyloid

\*Hematoxylin and eosin/hematoxylin, phloxine, and saffron

Q.279. Which one of the following diseases characteristically causes fatty change in liver?

1. Hepatitis B virus infection.
2. Wilson's disease.
3. Hepatitis C virus infection.
4. Chronic alcoholism.

Q.280. A 48-year-old woman was admitted with a history of weakness for two months. On examination, cervical lymph nodes were found enlarged and spleen was palpable 2 cm below the costal margin. Her hemoglobin was 10.5 g/dl, platelet count 237 x 10/L and total leukocyte count 40

x 10/L, which included 80% mature lymphoid cells with coarse clumped chromatin. Bone marrow revealed a nodular lymphoid infiltrate. The peripheral blood lymphoid cells were positive for CD19, CD5, CD20 and CD23 and were negative for CD79B and FMC-7.

The histopathological examination of the lymph node in this patient will most likely exhibit effacement of lymph node architecture by:

1. A pseudofollicular pattern with proliferation centers.
2. A monomorphic lymphoid proliferation with a nodular pattern.
3. A predominantly follicular pattern.
4. A diffuse proliferation of medium to large lymphoid cells with high mitotic rate.

This is the case of chronic lymphocytic leukemia (CLL) CLL and small lymphocytic lymphoma (SLL) - both are morphologically, phenotypically and genotypically indistinguishable, differing only in the degree of peripheral blood lymphocytosis.

For CLL - peripheral blood lymphocyte should be  $> 4000/\text{mm}^3$  or  $> 40 \times 10^9/\text{L}$ .

Mature lymphoid cells	Age of 50
Pan B cell marker CD 19 and CD20	Proliferation centers seen on histopathology
small lymphocyte on histology	

In addition to Pan B cell marker they have T cell marker (CD23 and CD5) on a small subset of normal B cell.

Prolymphocyte gather together focally to form loose aggregates (not typical follicle like follicular lymphoma) (and cell are not diffuse also)  
(So a Pseudofollicular pattern is seen)

Q.281. The following drugs have significant drug interaction with digoxin, except.

1. Cholestyramine.
2. Thiazide diuretics.
3. Quinidine.
4. Amlodipine.

Q.282. One of the following is not true about nesiritide:

1. It is a brain natriuretic peptide analogue.
2. It is used in acutely decompensated heart failure.
3. It has significant oral absorption.
4. It has a short half-life.

Katzung /209,214,Brain natriuretic peptide (BNP)

1. Endogenous peptide brain natriuretic peptide (BNP) has recently been approved for use in acute cardiac failure as nesiritide.
2. It increase cGMP in smooth muscle cells
3. Short half-life of T 1/2 - 18 min.
4. It is administered as a bolus i.v. Dose followed by continuous infusion.
5. Trade name (Natrecor)
6. Only parenteral preparation is available.

Q.283. All of the following conditions are known to cause diabetes insipidus except:

1. Multiple sclerosis.

2. Head injury.
3. Histiocytosis.
4. Viral encephalitis.

Q.284. Antipsychotic drug induced Parkinsonism is treated by:

1. Anticholinergics.
2. Levodopa.
3. Selegiline.
4. Amantadine.

Katzung /472,473

Drug induced parkinsonism is treated, when necessary, with conventional antiparkinsonism drugs of the antimuscarinic type or, in rare case with amantadine.

Akathesia and dystonia - diphenhydramine more used than antimuscarinic

Tardive dyskinesia

1. Occur in 20-40% of treated patient
2. Late adverse effect
3. Difficult to reverse, sometime self-limited.
4. First step is tried to discontinue or reduce the current antipsychotic or switch to one of the newer atypical agent.
5. 2nd step is eliminating all drugs with central anticholinergic action (note it).
6. If both measures fail, then addition of diazepam in doses as high as 30-40 mg/day may add to the improvement by enhancing GABAergic activity.

Q.285. Which one of the following is used in therapy of Toxoplasmosis?

1. Artesunate.
2. Thiacetazone.
3. Ciprofloxacin.
4. Pyrimethamine.

Drugs against both *T. gondii*

Pyrimethamine	trimethoprim	azithromycin
clindamycin	Chlortetracycline	Atovaquone
Pyrimethamine and trimethoprim	Inhibit the enzyme dihydrofolate reductase	
clindamycin, Chlortetracycline, and azithromycin	Inhibitors of protein synthesis	
Atovaquone	Blocks pyrimidine salvage	

Atovaquone, which blocks pyrimidine salvage, has demonstrated activity against both *T. gondii* and *P. carinii*.

Ocular toxoplasmosis	Treated for 1 month with pyrimethamine plus either sulfadiazine or clindamycin
Congenital toxoplasmosis	Daily oral pyrimethamine and sulfadiazine for 1 year
Immunocompromised	Pyrimethamine+ sulfadiazine+ Leucovorin

Therapy with spiramycin (100 mg/kg per day) plus prednisone (1 mg/kg per day) has been shown to be efficacious for congenital infection.

Both pyrimethamine and sulfadiazine cross the blood-brain barrier

Q.286. The following statements regarding finasteride are true except:

1. It is used in the medical treatment of benign prostatic hypertrophy (BPH).
2. Impotence is well documented after its use.
3. It blocks the conversion of dihydrotestosterone to testosterone.
4. It is a 5- $\alpha$  reductase inhibitor.

Finasteride is a competitive inhibitor of 5 $\alpha$ -reductase type 2. Finasteride blocks the conversion of testosterone to dihydrotestosterone, the principal androgen in the prostate. A dose of 5 mg/d causes an average decrease in prostate size of ~24%, an increase in urine flow rates, and, in some, improvement in symptoms.

The 5 $\alpha$ -reductase inhibitor finasteride ameliorate symptoms in a third or more of patients, but its impact is modest and not apparent for many months. Combined treatment with terazosin has proved no better than treatment with an alpha blocker alone in most men.

Q.287. Eterncept acts by one of ithe following mechanisms:

1. By blocking tumor necrosis factor.
2. By blocking bradykinin synthesis.
3. By inhibiting cyclo-oxygenase-2.
4. By blocking lipoxygenase.

Katzung /591      TNF  $\alpha$  blocking agents

- |  |
|--|
| <ol style="list-style-type: none"> <li>1. Also inhibit lymphotoxin <math>\alpha</math></li> <li>2. T <math>\frac{1}{2}</math> 4.5 days.</li> <li>3. 50 mg s.c. Once week dose.</li> <li>4. Ineffective in ulcerative colitis.</li> <li>5. But also used in <b>scleroderma, Wegener's granulomatosis, giant cell arteritis, sarcoidosis.</b></li> </ol> |
|--|

ANOTHER NEW DRUG

LEFLUNOMIDE - Active metabolite A77-1726

Inhibit dihydroorotate dehydrogenase



So decreases RNA synthesis.



Arrest of stimulated cells in GI phase

- So it inhibits T cell proliferation and production of antibodies.
- It is as effective as methotrexate and leflunomide resulted in a 46.2% response compared with 19.5% in-patient receiving methotrexate alone.

Q.288. All of the following are the disadvantages of anesthetic ether, except.

1. Induction is slow.
2. Irritant nature of ether increases salivary and bronchial secretions.
3. Cautery cannot be used.
4. Affects blood pressure and is liable to produce arrhythmias.

Q.289. In unconjugated hyperbilirubinemia, the risk of kernicterus increases with the use of:

1. Ceftriaxone.
2. Phenobarbitone.
3. Ampicillin.
4. Sulphonamide

Number of allergic reactions →Maculopapular rashes →urticaria  →Life-threatening reactions such as erythema multiforme, Stevens-Johnson syndrome, and toxic epidermal necrolysis	hematologic complications  →Granulocytosis,  → Hemolytic and megaloblastic anemia  →Granulocytopenia
Trimethoprim→ Hyperkalemia	Renal insufficiency caused by crystaluria
Jaundice and kernicterus in newborns	Drug fever with serum sickness, hepatic toxicity (including necrosis), and systemic lupus erythematosus.

It is recommended that sulfonamides not be administered to the newborn because of concerns that bilirubin may be displaced from protein-binding sites, with subsequent jaundice and kernicterus. The severe hypersensitivity reactions occurred most commonly after treatment with the long-acting sulfonamides, such as sulfamethoxypyridazine

Photosensitivity reactions are also relatively common with sulfonamides.

In high doses, trimethoprim interferes with the renal secretion of potassium. Hyperkalemia is relatively common among HIV-positive patients and is most often found after 7 days of trimethoprim-sulfamethoxazole therapy for pneumonia caused by *Pneumocystis carinii*.

Hemolytic anemia is most common in patients with glucose-6-phosphate dehydrogenase deficiency who take long-acting compounds; trimethoprim-sulfamethoxazole rarely causes hemolysis in such subjects.

Renal insufficiency, caused by crystals of the relatively insoluble acetyl metabolite, is observed primarily with the long-acting sulfonamides.

Q.290. Paralysis of 3rd, 4th, 6th nerves with involvement of ophthalmic division of 5th nerve, localizes the lesion to:

1. Cavernous sinus.
2. Apex of orbit.

3. Brainstem.
4. Base of skull.

The cavernous sinus syndrome is a distinctive and life-threatening disorder.

Ophthalmic veins →	Orbital or facial pain; orbital swelling and chemosis
Fever	
Oculomotor neuropathy	Third, fourth, and sixth cranial nerves involvement
Trigeminal neuropathy	Ophthalmic (V1) and occasionally the maxillary (V2) divisions

Most frequent causes are

Cavernous sinus thrombosis, often secondary to infection from orbital cellulitis (frequently *Staphylococcus aureus*),

In Sinusitis especially with mucormycosis in diabetic patients

Due to the anatomy of the cavernous sinus the syndrome may extend to become bilateral.

Q.291. All of the following are topically used sulphonamides except:

1. Sulphacetamide.
2. Sulphadiazine.
3. Silver sulphadiazine.
4. Mafenide.

Q.292. Oculogyric crisis is known to be produced by all of the following drugs except:

1. Trifluoperazine.
2. Atropine.
3. Perchlorperazine.
4. Perphenazine.

Answer is 2            Clinical Pharmacology P.N. Bennett, M.J. Brown 9th ed/384-85

Acute extrapyramidal side effects of antipsychotic are

Dystonia - abnormal movements of the tongue and facial muscles with

Fixed postures and spasm,

Include torticollis called Oculogyric crisis

And bizarre eye movement

Hence answer is (2) atropine

Remaining three are the typical antipsychotic that causes the acute dystonia.

Few important points about atypical anti psychotics –

1. Extra pyramidal side effects are seen, notably with high dose of **resperidone** and **olanzapine**.
2. **Clozapine and olanzopine** are the most likely of the atypical agents to cause anticholinergic (antimuscarinic) side effects.
3. More weight gain with - **clozapine, olanzopine**

4. impaired glucose tolerance more with **clozapine, olanzapine**.
5. **Risperidone and amisulpride** are as likely as classical antipsychotic to raise prolactin level and causing galactorrhea.
6. Most important risk with **clozapine - agranulocytosis** (2% of patient)

Q.293. Which of the following drugs is useful in prophylaxis of migraine?

1. Propranolol.
2. Sumatriptan.
3. Domperidone.
4. Ergotamine.

Prophylactic Treatment of Migraine drugs are now available that have the capacity to stabilize migraine

propranolol	valproate	Amitriptyline
timolol	methysergide	nortriptyline
verapamil	phenelzine	Isocarbazid
cyproheptadine		

Phenelzine is MAOI; therefore, tyramine-containing foods, decongestants, and meperidine are contraindicated.

Methysergide may cause retroperitoneal or cardiac valvular fibrosis when it is used for more than 8 months, thus monitoring is required for patients using this drug; the risk of the fibrotic complication is about 1:1500 and is likely to reverse after the drug is stopped.

Stimulation of 5-HT<sub>1</sub> receptors can stop an acute migraine attack. Ergotamine and dihydroergotamine are nonselective receptor agonists, while the series of drugs known as triptans are selective 5-HT<sub>1</sub> receptor agonists. A variety of triptans (e.g., naratriptan, rizatriptan, sumatriptan, zolmitriptan) are now available for the treatment of migraine.

Rizatriptan appears to be the fastest acting and most efficacious of the triptans currently available. Sumatriptan and zolmitriptan have similar rates of efficacy as well as time to onset, whereas naratriptan is the slowest acting and the least efficacious.

Unfortunately, monotherapy with a selective oral 5-HT<sub>1</sub> agonist does not result in rapid, consistent, and complete relief of migraine in all patients. Triptans are not effective in migraine with aura unless given after the aura is completed and the headache initiated. They are useless in prophylaxis of migraine. Recurrence of headache is a major limitation of triptan use.

Q.294. Inverse agonist of benzodiazepine receptor is:

1. Phenobarbitone.
2. Flumazenil.
3. Beta-carboline.
4. Gabapentin.



BZ antagonist	Flumazenil
BZ inverse agonist	B carboline
GABA agonist	BZ itself

Q.295. The group of antibiotics which possess additional antiinflammatory and immunomodulatory activities is:

1. Tetracyclines.
2. Polypeptide antibiotics.
3. Fluoroquinolones.
4. Macrolides.

Tacrolimus (originally labeled FK 506) is a macrolide lactone antibiotic isolated from a Japanese soil fungus, *Streptomyces tsukubaensis*. It has the same mechanism of action as cyclosporine but is 10 to 100 times more potent. The advantage of tacrolimus are minimizing episodes of rejection, reducing the need for additional glucocorticoid doses, and reducing the likelihood of bacterial and cytomegalovirus infection.

In most transplantation centers, tacrolimus has now supplanted cyclosporine for primary immunosuppression, and many centers rely on oral, rather than intravenous, administration from the outset.

The toxicity of tacrolimus is similar to that of cyclosporine; nephrotoxicity and neurotoxicity are the most commonly encountered adverse effects, and neurotoxicity (tremor, seizures, hallucinations, psychoses, coma) is more likely and more severe in tacrolimus-treated patients.

Both drugs can cause diabetes mellitus, but tacrolimus does not cause hirsutism or gingival hyperplasia. Because of overlapping toxicity between cyclosporine and tacrolimus, especially nephrotoxicity, and because tacrolimus reduces cyclosporine clearance, these two drugs should not be used together.

Q.296. With which of the following theophylline has an antagonistic interaction?

1. Histamine receptors.
2. Bradykinin receptors.
3. Adenosine receptors.
4. Imidazoline receptors.

Methylxanthines Theophylline and its various salts are medium-potency bronchodilators that work by increasing cyclic AMP by the inhibition of phosphodiesterase. They also shows Adenosine receptors antagonistic interaction.

Q.297. One of the following is not penicillinase susceptible.

1. Amoxicillin.
2. Penicillin G.
3. Piperacillin.
4. Cloxacillin.

Bacteria develop resistance to  $\beta$ -lactam antibiotics by a variety of mechanisms. Most common is the destruction of the drug by  $\beta$ -lactamases.

$\beta$ -lactamases production is plasmid controlled. These enzymes have a higher affinity for the  $\beta$ -lactam antibiotic. Binding results in hydrolysis of the  $\beta$ -lactam ring. Penicillins those are not penicillinase susceptible are methicillin, Cloxacillin, nafcillin etc.

A second mechanism of bacterial resistance to  $\beta$ -lactam antibiotics is an alteration in PBP

(penicillin binding proteins) targets so that the PBPs have a markedly reduced affinity for the drug. While this alteration may occur by mutation of existing genes, the acquisition of new PBP genes (as in staphylococcal resistance to methicillin

Q.298. Which one of the following is best associated with Lumefantrine?

1. Antimycobacterial.
2. Antifungal.
3. Antimalarial.
4. Antiamoebic.

Answer is 3

Artemether-lumefantrine and atovaquone-proguanil are recently introduced, well-tolerated antimalarial drugs used in 3-day regimens. They are both effective against multidrug-resistant falciparum malaria.

Q.299. Which one of the following drugs increases gastrointestinal motility?

1. Glycopyrrolate.
2. Atropine.
3. Neostigmine.
4. Fentanyl.

Answer is 3

Synthetic opioids, sharing properties of opium and morphine, include meperidine, propoxyphene, diphenoxylate, fentanyl, buprenorphine, methadone, and pentazocine. Various opiate effects are analgesia, respiratory depression, constipation, and euphoria. Fentanyl (80 to 100 times more powerful than morphine) is especially dangerous.

Atropine blocks the muscarinic receptors. Atropine decreases gastrointestinal tract motility and secretion and causes constipation. Although various derivatives and congeners of atropine (such as propantheline, isopropamide, and glycopyrrolate) have been advocated in patients with peptic ulcer or with diarrheal syndromes

Neostigmine is Cholinesterase inhibitors that enhance the effects of parasympathetic stimulation and leads to reversal of intoxication by agents with a anticholinergic action

Q.300. Which one of the following is the fastest acting inhalational agent?

1. Halothane.
2. Isoflurane.
3. Ether.
4. Sevoflurane.

Answer is 4

Sevoflurane -

- Similar to isoflurane and desflurane, sevoflurane causes slight increase in cerebral blood flow and intracranial pressure at normo carbia.
  - High concentration of Sevoflurane (> 1.5 MAC) may impair autoregulation of C.B.F. and thus allowing a drop in C.B.F. during hemorrhagic hypotension. This effect on CBF is less pronounced than isoflurane.
  - Property of sevoflurane -. non purgent and rapid increase in alveolar anesthetic concentration make sevoflurane an excellent choice for smooth and rapid inhalation induction in pediatric or adult patient
  - Contraindication of sevoflurane are  
2) Severe hypovolemia 2) Susceptibility to malignant hyperthermia 3) intracranial hypertension.
- Desflurane is the fastest acting agent. While 2nd is the Sevoflurane.

