GUJCET-E-2014

Test Booklet No. 10425 Test Booklet Code A

This booklet contains 52 pages.

DO NOT open this Test Booklet until you are asked to do so.

Important Instructions :

1) This test consists 120 questions of Physics, Chemistry and Biology. Each question carries **1** mark. For each correct response the candidate will get **1** mark. For each incorrect response ¼ mark will be deducted. Maximum marks is **120**.
2) This Test is of **3 hours** duration.
3) Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet and marking answers by darkening the circle '●'.
4) Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5) **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
6) The CODE for this Booklet is **A**. Make sure that the CODE printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7) The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
8) Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
9) Use of White fluid for correction is not permissible on the Answer Sheet.
10) Each candidate must show on demand his / her Admission Card to the Invigilator.
11) No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
12) Use of Manual Calculator is permissible.
13) The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak - 01) be deemed not to have handed over the Answer Sheet and dealt with as an unfair means case.
14) The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
15) No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
16) The candidates will write the Correct Test Booklet Code as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak - 01)

SEAL

Candidate's Name : .....

Exam. Seat No. (in figures) ..... (in words) .....

Name of Exam. Centre : .....Exam. Centre No.: .....

Test Booklet Code : ..... Test Booklet No. : .....

Candidate's Sign ..... *Block Supt. Sign* .....

PHYSICS

1) Dimensional formula for electric field is _____.

(A) $M^1 L^2 T^{-3} A^{-2}$

(B) $M^1 L^2 T^{-3} A^{-1}$

✓(C) $M^1 L^1 T^{-3} A^{-1}$

(D) $M^0 L^0 T^0 A^0$

2) A particle having mass m and charge q is at rest. On applying a uniform electric field E on it, it starts moving. What is the kinetic energy when it travels a distance x in the direction of force?

(A) $qE^2 x$

(B) $q^2E x$

(C) $qE x^2$

✓(D) $qE x$

3) Two spheres having same radius and mass are suspended by two strings of equal length from the same point, in such a way that their surfaces touch each other. On depositing charge 4×10^{-6} C on them they repel each other in such a way that in equillibrium the angle between their strings becomes 60°. If the distance from the point of suspension to the center of the sphere is 10 cm. Find the mass of each sphere. ($K = 9 \times 10^9$ SI and $g = 10\ ms^{-2}$.)

(A) 0.3117 kg

✓(B) 0.6235 kg

(C) 0.1559 kg

(D) 1.2468 kg

(Space for Rough Work)

4) Electric field produced due to an infinitely long straight uniformly charged wire at perpendicular distance of 2 cm is 3×10^8 NC^{-1}. Then linear charge density on the wire is _____.

($K = 9 \times 10^9$ SI unit)

(A) $333 \frac{\mu c}{m}$

(B) $3.33 \frac{\mu c}{m}$

(C) $666 \frac{\mu c}{m}$

(D) $6.66 \frac{\mu c}{m}$

5) Two identical thin rings each of radius R m are kept on the same axis at a distance of R m apart. If the charges on them are 10 C and 5 C respectively, Calculate the work done in moving charge q C from the center of one ring to that of another.

(A) $\frac{5q}{4\pi\epsilon_0 R}\left[\frac{\sqrt{2}-1}{2}\right]$ J

(B) $\frac{5q}{4\pi\epsilon_0 R}\left[1-\frac{1}{\sqrt{2}}\right]$ J

(C) $\frac{15q}{4\pi\epsilon_0 R}\left[\frac{\sqrt{2}-1}{\sqrt{2}}\right]$ J

(D) $\frac{10q}{4\pi\epsilon_0 R}\left[\frac{\sqrt{2}-1}{\sqrt{2}}\right]$ J

(Space for Rough Work)

6) Q amount of electric charge is present on the surface of a sphere having radius R. Then electrical potential energy of this system is _____.

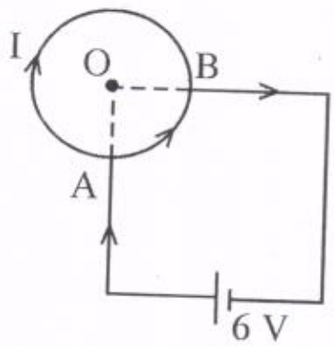
(A) $\frac{KQ^2}{R}$

(B) $\frac{KQ^2}{R^2}$

(C) $\frac{1}{2}\frac{KQ^2}{R}$

(D) $\frac{1}{2}\frac{KQ^2}{R^2}$

7) A wire is bent in the form of circle of radius 2m. Resistance per unit length of wire is $1/\pi\ \Omega/m$. Battery of 6V is connected between A & B. $\angle AOB = 90°$. Find the current through the battery.



(A) 8 A

(B) 4 A

(C) 3 A

(D) 9 A

(Space for Rough Work)

8) The carbon resistor has three orange bands. The maximum value of resistance offered by the resistor will be _____.

(A) 49.6 K Ω

(B) 39.6 K Ω

(C) 33 K Ω

(D) 26.4 K Ω

9) Two wires of same material having lengths and radii in the ratio of 3:4 and 3:2 respectively are connected in parallel with a potential source of 6V.

The ratio of currents flowing through them, $I_1:I_2$ = _____.

(A) 1:3

(B) 3:1

(C) 1:2

(D) 2:1

10) For the galvanometer working as a voltmeter _____ is connected with the coil of the galvanometer.

(A) high resistance in parallel

(B) high resistance in series

(C) low resistance in parallel

(D) low resistance in series

(Space for Rough Work)

11) The ratio of periods of $\propto$ – particle and proton moving on circular path in uniform magnetic field is _____.

(A) 2 : 1 (B) 1 : 2

(C) 4 : 1 (D) 1 : 4

12) Two concentric rings are kept in the same plane. Number of turns in each ring is 25. Their radii are 50 cm and 200 cm and they carry electric currents of 0.1 A and 0.2 A respectively, in mutually opposite directions. The magnitude of the magnetic field produced at their centre is _____ T.

(A) $4\mu_0$ (B) $2\mu_0$

(C) $\frac{10}{4}\mu_0$ (D) $\frac{5}{4}\mu_0$

13) The magnetic susceptibility of a paramagnetic material is 1.0×10^{-5} at 27° C temperature. Then, at what temperature its magnetic susceptibility would be 1.5×10^{-5}?

(A) 18° C (B) 200° C

(C) –73° C (D) –18° C

(Space for Rough Work)

14) The Earth's magnetic field at some place on magnetic equator of Earth is 0.5×10^{-4} T. Consider the radius of Earth at that place as 6400 km. Then, magnetic dipole moment of the Earth is _____ Am^2 ($\mu_0 = 4\pi \times 10^{-7}$ TmA^{-1})

(A) 1.05×10^{23}

(B) 1.31×10^{23}

(C) 1.15×10^{23}

(D) 1.62×10^{23}

15) Antistokes lines is Raman Scattering are the lines of _____ frequency and _____ wavelength.

(A) low, high

(B) low, low

(C) high, high

(D) high, low

16) The time taken by the sunlight to reach the bottom of a tank of depth 4.5m filled completely with water is _____ ns. The refractive index of water is 4/3.

(A) 2

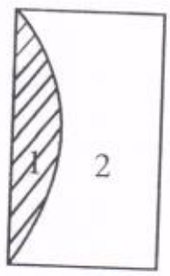
(B) 20

(C) 1.5

(D) 200

(Space for Rough Work)

17) A plano convex lens fits exactly into plano concave lens as shown in figure. Their plane surfaces are parallel to each other. If the lens are made of different materials of refractive indices 1.6 & 1.5 respectively. If R is the radius of curvature of curved surfaces of lenses. Then the focal length of the combination.



(A) $\frac{R}{6.2}$

(B) $\frac{R}{0.2}$

(C) $\frac{R}{3.1}$

(D) $\frac{R}{0.1}$

18) A body of mass 100 g moves at the speed of 36 km/hr. The de Broglie wave length related to it is of the order _____ m ($h = 6.626 \times 10^{-34}$ Js)

(A) 10^{-14}

(B) 10^{-24}

(C) 10^{-34}

(D) 10^{-44}

(Space for Rough Work)

19) If the kinetic energy of free electron is made double, the new de Broglie wave length will be _____ times that of initial wave length.

(A) $\sqrt{2}$

(B) $\frac{1}{\sqrt{2}}$

(C) 2

(D) $\frac{1}{2}$

20) Threshold wave length for lithium metal is 6250 Å. For photo emission, the wave length of the incident light must be _____.

(A) More than 6250 Å

(B) Exactly equal to 6250 Å

(C) Equal to or more than 6250 Å

(D) Equal to or less than 6250 Å

21) The dimensional formula of magnetic flux is _____.

(A) $M^1 L^2 T^{-3} A^{-1}$

(B) $M^1 L^2 T^{-2} A^{-1}$

(C) $M^{-1} L^{-2} T^2 A^1$

(D) $M^1 L^3 T^{-2} A^{-1}$

(Space for Rough Work)

22) A conducting Coil having 500 turns has cross - sectional area 0.15 m^2. A magnetic field of strength 0.2 T linked perpendicular to this area changes to 1.0 T in 0.4 sec. The induced emf produced in the coil will be _____volt.

(A) 10.0 (B) 15.0

(C) 75.0 (D) 150.0

23) The output power in step-up transformer used in practice is _____.

(A) Greater than the input power

(B) Equal to the input power

(C) Less than the input power

(D) None of these

24) A lamp consumes only 50% of maximum power applied in an A.C. circuit. What will be the phase difference between applied voltage and circuit current?

(A) $\pi/6$ rad (B) $\pi/3$ rad

(C) $\pi/4$ rad (D) $\pi/2$ rad

(Space for Rough Work)

25) An electric current has both D.C. and A.C. Components D.C. Component of 8A and A.C. Component is given as $I = 6 \sin \omega t$ A. So I_{rms} value of resultant current is _____.

(A) 8.05 A
(B) 9.05 A
(C) 11.58 A
(D) 13.58 A

26) The wave length of the short radio waves, micro waves, ultraviolet waves are λ_1, λ_2 and λ_3 respectively. Arrange them in decreasing order.

(A) $\lambda_1, \lambda_3, \lambda_2$
(B) $\lambda_1, \lambda_2, \lambda_3$
(C) $\lambda_3, \lambda_2, \lambda_1$.
(D) $\lambda_2, \lambda_1, \lambda_3$

27) The unit of permeability of Vacuum (μ_0) is _____.

(A) $\frac{N}{A}$
(B) $\frac{N}{A^2}$
(C) NA
(D) J/A^2

28) In young's double slit experiment, if the width of 4th bright fringe is 2×10^{-2} cm, then the width of 6th bright fringe will be _____ cm.

(A) 10^{-2}
(B) 3×10^{-2}
(C) 2×10^{-2}
(D) 1.5×10^{-2}

(Space for Rough Work)

29) Unpolarized light falls first on polarizer (P) and then on analyzer (A). If the intensity of the transmitted light from the analyzer is $\frac{1}{8}$ th of the incident unpolarized light. What will be the angle between optic axes of P & A?

(A) 30°
(B) 45°
(C) 0°
(D) 60°

30) The diameter of the pupil of human eye is 2.5 mm. Assuming the wave length of light used is 5000 Å. What must be the minimum distance between two point like objects to be seen clearly if they are at a distance of 5 m from the eye?

(A) 1.34×10^{-3} m
(B) 1.22×10^{-3} m
(C) 1.5×10^{-3} m
(D) 1.6×10^{-3} m

31) If λ_1 and λ_2 are the wave length of the first numbers of the Lyman and Paschen series respectively. Then $\lambda_1 : \lambda_2$ _____.

(A) 1 : 3
(B) 1 : 30
(C) 7 : 50
(D) 7 : 108

32) The wave length of X-rays is in the range.

(A) 0.001 nm to 1 nm
(B) 0.001Å to 1Å
(C) 0.001 μm to 1 μm
(D) 0.001 cm to 1 cm

(Space for Rough Work)

33) In the radio active transformation

$$_{Z}X^{A} \longrightarrow {}_{Z+1}X_{1}^{\ A} \longrightarrow {}_{Z-1}X_{2}^{\ A-4} \longrightarrow {}_{Z-3}X_{3}^{\ A-8}$$

Which are successively emitted radioactive radiations?

(A) α, β^-, β^- (B) β^-, α, β^-

(C) β^-, α, α (D) α, β^-, α

34) The binding energy per nuclean of $_{8}O^{16}$ is 7.97 MeV and that of $_{8}O^{17}$ is 7.75 MeV. The energy required to remove one neutron from $_{8}O^{17}$ is _____ MeV.

(A) 3.52 (B) 3.62

(C) 4.23 (D) 7.86

35) The half life of a radio active substance is 20 days. If $\frac{2}{3}$ part of the substance has decayed in time t_2 and $\frac{1}{3}$ part of it has decayed in time t_1 then the time interval between t_2 and t_1 is $(t_2 - t_1)$ = _____.

(A) 5 days (B) 10 days

(C) 20 days (D) 40 days

36) The frequency of the output signal becomes _____ times by doubling the value of the capacitance in the LC oscillator circuit.

(A) $\frac{1}{\sqrt{2}}$ (B) $\sqrt{2}$

(C) $\frac{1}{2}$ (D) 2

(Space for Rough Work)

37) In a zener diode, the reverse bias voltage is 3V and the width of the depletion region is 300 A°, the electric field intensity will be _____ V/cm.

(A) 10^4 (B) 10^6

(C) 10^8 (D) 10^{-2}

38) The collector supply voltage in CE transistor amplifier is 10V. The base current is 10 μA in the absence of the signal voltage and the voltage between the collector and the emitter is 4V. The current gain (β) of a transistor is 200, then the value of the load resistance R_L _____.

(A) 1 K Ω (B) 2 K Ω

(C) 3 K Ω (D) 4 K Ω

39) The range of frequency of audio signal is _____.

(A) 0 to 2 KHz (B) 20 Hz to 20 MHz

(C) 20 Hz to 20 KHz (D) 20 KHz to 200 KHz

40) For an amplitude modulated wave, the maximum amplitude is found to be 12V and minimum amplitude is found to be 4V. The modulation index of this wave is _____%.

(A) 25 (B) 50

(C) 75 (D) 20

(Space for Rough Work)

CHEMISTRY

41) The atoms of element 'Y' form hexagonal close packing and the atoms of element X occupies $\frac{2}{3}$ portion of the number of tetrahedral voids. Write the formula of the compound formed by X and Y.

(A) X_2Y_3

(B) X_2Y

(C) X_3Y_4

(D) X_4Y_3

42) What is the difference between the number of atoms per unit cell in face centred cube and the number of atoms per unit cell in body centred cube?

(A) 2

(B) 1

(C) 4

(D) 6

43) What will be the value of molality for an aqueous solution of 10% w/w NaOH. (Na = 23, O = 16, H = 1)

(A) 2.778

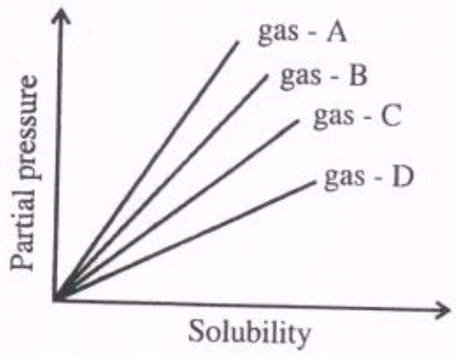
(B) 5

(C) 10

(D) 2.5

(Space for Rough Work)

44) From the given graph at constant temperature, which gas has the least solubility?



(A) gas - D

(B) gas - B

(C) gas - A

(D) gas - C

45) If 10 ml of 0.1 M aqueous solution of NaCl is divided in to 1000 drops of equal volume, what will be the concentration of one drop?

(A) 0.01 M

(B) 0.10 M

(C) 0.001 M

(D) 0.0001 M

46) Which of the following will give $H_{2(g)}$ at cathode and $O_{2(g)}$ at anode on electrolysis using platinum electrodes?

(A) molten NaCl

(B) concentrated aq.solution of NaCl

(C) dilute aq. solution of NaCl

(D) solid NaCl

(Space for Rough Work)

47) Which of the following statement is incorrect with respect to metallic or electronic conductivity?

(A) metallic conductivity depends on the structure of metal and its characteristics

(B) metallic conductivity depends on the number of electrons in the valence shell of atom of metal

(C) The electrical conductivity of metal increases with increase in temperature

(D) There is no change in the structure of metal during electrical conduction

48) Which of the following is concentration cell?

(A) $Cu_{(s)}/Cu^{2+}_{(aq,\,1M)} /\!/ Cu^{2+}_{(aq,\,1M)}/Cu_{(s)}$

(B) $Cu_{(s)}/Cu^{2+}_{(aq,0.5M)} /\!/ Cu^{2+}_{(aq,\,0.5M)}/Cu_{(s)}$

(C) $Zn_{(s)}/Zn^{2+}_{(aq,0.5M)} /\!/ Cu^{2+}_{(aq,\,0.1M)}/Cu_{(s)}$

(D) $^{\ominus}Pt/H_{2_{(g,1bar)}}/HCl_{(aq,0.002M)} /\!/ HCl_{(aq,0.005M)}/H_{2_{(g,1bar)}}/Pt^{\oplus}$

49) Which of the following metal is purified by Mond Carbonyl method?

(A) Zr (B) Ti

(C) Ge (D) Ni

(Space for Rough Work)

50) Which oxide is colourless and neutral?

(A) N_2O

(B) N_2O_3

(C) N_2O_4

(D) N_2O_5

51) What is the geometrical shape of XeO_3?

(A) Planar triangular

(B) Trigonal pyramidal

(C) Square planar

(D) Tetrahydral

52) Aqueous solution of which of the following acid can not be kept in glass bottle?

(A) HF

(B) HI

(C) HCl

(D) HBr

53) Which of the following is the correct order for strength of C – X bond.

(A) $CH_3F > CH_3Cl > CH_3Br > CH_3I$

(B) $CH_3F < CH_3Cl < CH_3Br < CH_3I$

(C) $CH_3I > CH_3F > CH_3Cl > CH_3Br$

(D) $CH_3Cl > CH_3Br > CH_3F > CH_3I$

(Space for Rough Work)

54) Which one is the Swartz reaction from the following?

(A) $CH_3Cl + NaI \xrightarrow{\text{acetone}} CH_3I + NaCl$

(B) $CH_3Br + NaI \xrightarrow{\text{acetone}} CH_3I + NaBr$

(C) $CH_3Br + AgF \longrightarrow CH_3F + AgBr$

(D) $2\,CH_3Cl + 2\,Na \xrightarrow{\text{Dry ether}} CH_3 \cdot CH_3 + 2\,NaCl$

55) Which of the following statement is incorrect for bimolecular nucleophylic substitution reaction (SN^2)?

(A) It is a second order reaction

(B) In SN^2 reaction the substrate does not undergo heterolytic fission

(C) The rate of SN^2 reaction does not depends on concentrations of both substrate and nucleophilic reagent

(D) SN^2 reaction occurs in single step without forming intermediate

56) Which of the following alcohol has highest solubility in water?

(A) Secondary butyl alcohol

(B) Tertiary butyl alcohol

(C) Ethelene glycol

(D) Glycerol

(Space for Rough Work)

57) In which of the following reactions of alcohol there is no cleavage of C–O bond?

(A) Oxidation reaction of alcohol

(B) Dehydration reaction of alcohol

(C) Reduction reaction of alcohol

(D) Reaction of alcohol with phosphorous tribromide

58) Which one of the following compounds do not give a primary alcohol on reduction?

(A) Propanoic acid

(B) Propanal

(C) Methyl propanoate

(D) Propan - 2 - one

59) The half life period for a first order reaction is _____.

(A) Proportional to concentration

(B) Independent of concentration

(C) Inversely proportional to concentration

(D) Inversely proportional to the square of the concentration

60) According to Arrhenius equation, the slope of $\log k \rightarrow \frac{1}{T}$ plot is _____.

(A) $\frac{-Ea}{2.303}$

(B) $\frac{-Ea}{2.303R}$

(C) $\frac{-Ea}{2.303RT}$

(D) $\frac{Ea}{2.303RT}$

(Space for Rough Work)

61) The value of rate constant for a first order reaction is 2.303×10^{-2} sec^{-1}. What will be the time required to reduce the concentration to $\frac{1}{10}^{th}$ of its initial concentration?

(A) 10 second
(B) 100 second
(C) 2303 second
(D) 230.3 second

62) Which of the following statement is incorrect for physical adsorption?

(A) Monomolecular layer forms on the adsorbent
(B) It is instantaneous
(C) Less activation energy is required for it
(D) Generally it results at low temperature and adsorption decreases with increase in temperature

63) Name the catalyst [X] for the reaction, $CO_{(g)} + H_{2(g)} \xrightarrow{[X]} HCHO_{(g)}$.

(A) Ni
(B) Cu
(C) Cu / ZnO
(D) Cu / Cr_2O_3

64) Which of the following is a transition element as per the ground state electronic configuration?

(A) Au
(B) Hg
(C) Cd
(D) Zn

(Space for Rough Work)

65) Which of the following option is the correct order for the basic strength of metallic hydroxides?

(A) $Al(OH)_3 < Lu(OH)_3 < Ce(OH)_3 < Ca(OH)_2$

(B) $Ca(OH)_2 < Al(OH)_3 < Lu(OH)_3 < Ce(OH)_3$

(C) $Lu(OH)_3 < Ce(OH)_3 < Al(OH)_3 < Ca(OH)_2$

(D) $Lu(OH)_3 < Ce(OH)_3 < Ca(OH)_2 < Al(OH)_3$

66) Which of the following compound is used in gas lighter.

(A) CeO_2

(B) Pyrophoric Misch metal

(C) Nichrome

(D) Nitinol

67) Which of the following complex does not show optical isomerism?

(A) $[Cr(C_2O_4)_3]^{3-}$

(B) Cis $[Pt(Br)_2(en)_2]^{2+}$

(C) $[CrCl_2(NH_3)_2 en]^+$

(D) $[Cr(NH_3)_4 SO_4]^+$

68) Which of the following complex ion has least stability?

(A) $[Co(CN)_6]^{3-}$

(B) $[Co(NH_3)_6]^{2+}$

(C) $[Co(NH_3)_6]^{3+}$

(D) $[Co(CO)_6]^{3+}$

(Space for Rough Work)

69) Which of the following ligand possess only one co-ordination site?

(A) O^{2-}

(B) CO_3^{2-}

(C) SO_4^{2-}

(D) $[OX]^{2-}$

70) Which of following is the correct order of acidic strength?

(A) $CH_3COOH > ClCH_2COOH > Cl_2CHCOOH > Cl_3{\cdot}C{\cdot}COOH$

(B) $Cl_3{\cdot}C{\cdot}COOH > Cl_2CH{\cdot}COOH > Cl{\cdot}CH_2COOH > CH_3COOH$

(C) $CH_3COOH > Cl_3{\cdot}C{\cdot}COOH > Cl_2CH{\cdot}COOH > Cl{\cdot}CH_2COOH$

(D) $CH_3COOH > ClCH_2COOH > Cl_2{\cdot}CH{\cdot}COOH > Cl_3{\cdot}C{\cdot}COOH$

71) The solution of Fehling B contains _____.

(A) Alkaline sodium potassium citrate

(B) Acidified Rochelle salt

(C) Alkaline sodium potassium tartarate

(D) Acidified sodium potassium citrate

72) Which of the following compound does not react with concentrated alkali to give corresponding alcohol and salt of carboxylic acid?

(A) Benzaldehyde

(B) Trimethyl acetaldehyde

(C) Dimethyl acetaldehyde

(D) Formaldehyde

(Space for Rough Work)

73) Which of the following reaction does not occur?

(A) Tri propyl amine + benzene sulphonyl chloride

(B) Di propyl amine + benzene sulphonyl chloride

(C) Propyl amine + benzene sulphonyl chloride

(D) Propyl amine + p-toluene sulphonyl chloride

74) Presently which reagent is used for separation of 1°, 2° and 3° amines?

(A) p - toluene sulphonyl chloride

(B) Benzene sulphonyl chloride

(C) p - Amino benzene sulphonyl chloride

(D) m - toluene sulphonyl chloride

75) Which vitamin is not obtained from plants?

(A) Thiamine

(B) Cyanocobalamine

(C) Pyridoxine

(D) α - Tocopherol

76) When sucrose is heated to 483 K temperature, it loses water and forms a brown amorphous substance called _____.

(A) Aspartame

(B) Caramel

(C) Alitame

(D) Sucrolose

(Space for Rough Work)

77) Which of the following amino acid is neutral?

(A) Glycine
(B) Aspartic acid
(C) Lysine
(D) Arginine

78) Which of the following polymer form net like structure?

(A) Polythene
(B) Butyl rubber
(C) Polystyrene
(D) Melamine polymer

79) Which of the following pair of monomers are used in preparation of PHBV?

(A) β - Hydroxy butyric acid, β - hydroxy valeric acid
(B) β - Hydroxy valeric acid, Amino caproic acid
(C) β - Hydroxy butyric acid, Adipic acid
(D) Lactic acid, Adipic acid

80) Which of the following is useful as a food preservative?

(A) Salts of sorbic acid
(B) Sucrolose
(C) Ascorbic acid
(D) Citric acid

(Space for Rough Work)

81) Flaccid cell means _____

(A) Plasmolysed cell

(B) Cell with turgidity

(C) The cell in which water flows in and out of cell are in equilibrium

(D) The cell kept in hypotonic solution

82) Which of the option is correct for photorespiration?

(A) In Chloroplast, glycerate forms glycine

(B) In Peroxisome, glycerate forms phosphoglycolate

(C) In Mitochondrion, glycine forms serine

(D) In Bundle sheath, serine forms glycine

83) If bundlesheath cells of the C_4 plants are infected by an organism, which utilize CO_2 efficiently then which process will be affected very first?

(A) PGAL → RUBP

(B) PGAL + PGA → Glucose

(C) PGA → PGAL

(D) RUBP → PGA

(Space for Rough Work)

84) Which option is correct for the region produced from the apical octant (a) and basal octant (b), in capsella type of embryonic development

(A) a = Central region of radicle
b = Cotyledon

(B) a = Cotyledon
b = Central region of radicle

(C) a = Hypocotyl
b = Plumule of embryo

(D) a = Plumule of embryo
b = Hypocotyl

85) Which option shows incorrectly matched group?

(A) Pseudopodiospores – Plasmodium – Sporulation
(B) Gemmules – Spongilla – Budding
(C) Zoospores – Aspergillus – Sporulation
(D) Conidia – Penicilliun – Asexual reproduction

86) Which option is correct for the disease caused by protozoans :

(A) Herpes simplex – itching in the genital or and area
(B) Treponema pallidium – white patches on the tongue or roof of the buccal cavity
(C) Neisseria gonorrhoeae – pain during passing urine
(D) Trichomonas vaginalis – pain during passing urine

(Space for Rough Work)

87) Which of the following option is correct for the statement 'X' and 'Y'?

Statement 'X' : Immediately after repolarization, ionic imbalance is created on both the sides of nerve fibre.

Statement 'Y' : During repolarization K^+ ion channel open up and K^+ ion moves on innerside of plasma membrane.

Options :-

(A) Statements 'X' and 'Y' are correct and 'Y' is correct for 'X'.

(B) Statements 'X' and 'Y' are correct and 'Y' is not correct for 'X'.

(C) Statement 'X' is correct and statement 'Y' is wrong.

(D) Statement 'X' is wrong and statement 'Y' is correct.

88) Which 'enzyme' initiates the digestion of proteins :-

(A) Pepsin

(B) Trypsin

(C) Aminopeptidase

(D) Carboxypeptidase

89) Volume of air inspired and expired with each normal breath is known as _____

(A) Total lung capacity

(B) Residual Volume (R.V.)

(C) Vital Capacity (V.C.)

(D) Tidal Volume (T.V.)

(Space for Rough Work)

90) Which option is correct for the formation of 'Intrinsic factor – X Activator complex for blood coagulation?

(A) Inactivated Christmas factor + AHG + phospholipid + Ca^{+2}

(B) Activated Christmas factor + AHG + phospholipid + Ca^{+2}

(C) Convertin + AHG + Ca^{+2} + FSF

(D) Phospholipid – protein complex + Proconvertin

91) Which diagram is correct for the circulation of blood through human heart?

(A) 

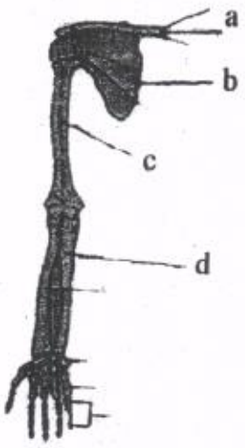
(B) 

(C) 

(D) 

(Space for Rough Work)

92) Which option is correct for the region labelled as a, b, c and d in the given diagram?
Options:-



(A) a - Clavicle, b - Scapula,
c - Humerus, d - Radius

(B) a - Scapula, b - Clavicle,
c - Humerus, d - Ulna

(C) a - Clavicle, b - Ulna,
c - Radius, d - Humerus

(D) a - Clavicle, b - Glenoid cavity
c - Radius, d - Ulna

93) For the given statement 'X' and 'Y', which option is the correct option.

Statement 'X' : Red muscle are also called aerobic muscle.

Statement 'Y' : Red muscle possesses large amount of mitochondria which can utilize large amount of oxygen stored in them for ATP production.

Options :-

(A) Statement 'X' and 'Y' are correct and statement 'Y' is incorrect explanation for 'X'

(B) Statement 'X' is correct and 'Y' is incorrect

(C) Statement 'X' is incorrect and 'Y' is correct

(D) Statement 'X' and 'Y' are correct and statement 'Y' is correct explanation for 'X'

(Space for Rough Work)

94) From the following options, which is the correct one :

(A) Glucose $\xrightarrow[\beta\text{-cells}]{\text{Glucagon}}$ Glycogen

(B) Glucose $\xrightarrow[\alpha\text{-cells}]{\text{insulin}}$ Glycogen

(C) Glycogen $\xrightarrow[\alpha\text{-cells}]{\text{Glucagon}}$ Glucose

(D) Glucose $\xrightarrow[\alpha\text{-cells}]{\text{Glucagon}}$ Glycogen

95) While working in a lab, a student forgot to add colchicine while karyotyping through blood culture technique. Then what will happen :

(A) Mitosis will be arrested at metaphase

(B) Chromosomal division will continue and each chromosome will have four arms

(C) Chromosomal division will continue

(D) Mitosis will be arrested at telophase

(Space for Rough Work)

96) In Lac-Operon it mutation occurs in the middle gene of the 'structural gene' then :

(A) Permease will not be synthesized

(B) β - Galactosidase will not be synthesized

(C) Transacetylase will not be synthesized

(D) Lactose digestion will be rapid

97) Some genomic representation of skin colour are given below :

(i) AA bb CC (ii) AA bb cc

(iii) AA BB CC (iv) aa bb cc

Which of option is correct for showing the darkness of colour of the skin in decreasing order :

(A) i → iv → ii → iii (B) iii → ii → i → iv

(C) iii → i → ii → iv (D) i → iii → ii → iv

98) Select the correct option for the given statements 'X', 'Y' and 'Z'.

'X' - A transgenic cow, Rosie produced human protein-enriched milk, which was nutritionally more balanced product for human babies than natural cow milk.

'Y' - Milk produced by transgenic cow, Rosie contain 2.4 gm. protein / li.

'Z' - In the above mentioned milk in 'Y' statement, alpha - lactalbumin is present.

(A) Statement X, Y, Z are true and statement Z gives correct explanation for X

(B) Statement X, Y, Z are true and statement Z does not give correct explanation of X

(C) Statement X & Y are correct. Statement Z is wrong

(D) Statement X & Y are wrong. Statement Z is correct

(Space for Rough Work)

99) Which of the option shows following examples in ascending order in terms of BOD?

i) Distilled water

ii) Tap water

iii) Sewage wastes drained in river

(A) i – ii – iii

(B) ii – i – iii

(C) iii – i – ii

(D) iii – ii – i

100) Choose the correct option for the toxic protein produced by B. Thuringiensis :

(A) it acts in acidic medium and binds to epithelial cells of foregut.

(B) it acts in neutral medium and binds to epithelial cells of hindgut.

(C) it acts in alkaline medium and binds to epithelial cells of foregut.

(D) it acts in alkaline medium and binds to epithelial cells of midgut.

101) Non –symbiotic nitrogen fixation takes place by :

(A) Nostoc, Azotobacter, Clostridium

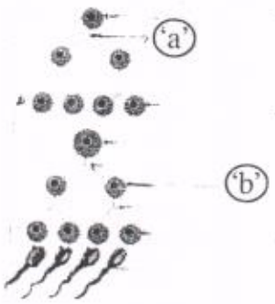
(B) Anabena, Nostoc, Rhizobium

(C) Azotobacter, Nitrosomonas, Rhizobium

(D) Anabena, Nitrosomonas, Pseudomonas

(Space for Rough Work)

102) Which option is correct for the region labelled as "a" and "b" in the given diagram?



(A) a = Mitosis b = Primary Spermatocyte

(B) a = Meiosis b = Secondary Spermatocyte

(C) a = Mitosis b = Secondary Spermatocyte

(D) a = Meiosis b = Primary Spermatocyte

103) Which option is completely correct for the given statements :

Statements :

Statement 1 : The nerve impulse ordered by respiratory centre passes through nerve to the diaphragm and the intercostal muscles and regulates respiration.

Statement 2 : Respiratory centres scatterly located in brain stem gives of rythmic stimuli to diaphragm and respiratory muscle and regulate respiration.

(A) First statement is correct and second statement is wrong

(B) First statement is wrong and second statement is correct

(C) Both of the statements are wrong

(D) Both of the statements are correct

(Space for Rough Work)

104) Which segment of renal tubule is permeable to water but nearly impermeable to salts?

(A) Proximal conkulated tubule

(B) Descending limb of Henle's loop

(C) Ascending limb of Henle's loop

(D) Distal conkulated tubule

105) Which option is correct for the correctly matched groups for the Column I, Column II and Column III.

Column I		Column II		Column III	
a)	Resting membrane potential	i)	Na^+ channel get open	e)	Na^+ and K^+ pumps are responsible for it
b)	Action potential	ii)	Na^+ channel is closed	f)	Last for very short time
c)	Depolarization	iii)	Na^+ ions are more on outer side of membrane	g)	K^+ ions move on outerside
d)	Repolarization	iv)	Na^+ ions are more on inner side of membrane	h)	Positive charge on inner side of membrane

(A) (a - ii - h) (b - i - g) (c - iii - e) (d - iv - f)

(B) (a - iii - e) (b - iv - f) (c - i - h) (d - ii - g)

(C) (a - iv - f) (b - iii - e) (c - i - e) (d - i - h)

(D) (a - iv - e) (b - iii - f) (c - ii - g) (d - i - g)

(Space for Rough Work)

106) Which option is correct for the aminoacid and the total number of their genetic code?

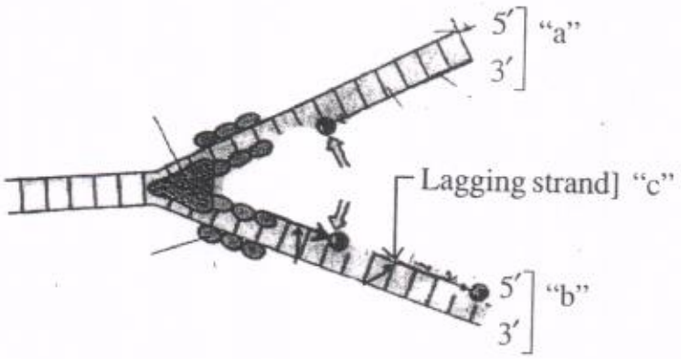
(A) Arg = 6, His = 6

(B) Val = 6, Pro = 6

(C) Pro = 4, Thr = 4

(D) Thr = 4, Arg = 4

107) Which option shows correctly labelled region in the given diagram of DNA replication?



(A) only c

(B) a, c

(C) a, b

(D) b, c

108) In population 'X' proportion of gene "M" is 60% and gene "m" is 40% then which of the following options is correct for the Heterozygous genotype in the off spring (According to Hardy - Weinberg Law)?

(A) 36%

(B) 48%

(C) 16%

(D) 20%

(Space for Rough Work)

109) Breeding ground for migratory flemingo is _____

(A) area between Khadir and Paccham islands in great Rann of Kachch

(B) area of Gulf of Kachch (Kutch)

(C) area of great Rann of Kachch (Kutch) and little Rann of Kachch (Kutch)

(D) area of Nal Sarovar Bird Sanctuary

110) "Embryo are not differentiated into different tissues at the time of fruit ripening". Select option related to this statement?

(A) Exogenous dormancy, physiological dormancy

(B) Endogenous dormancy, morphological dormancy

(C) Exogenous dormancy, morphological dormancy

(D) Endogenous dormancy, mechanical dormancy

111) In muscles from three molecules of glucose, two are completely oxidized and one is incompletely oxidized (anaerobic) then, what will be the number of total NAD^+ molecules utilized?

(A) 10

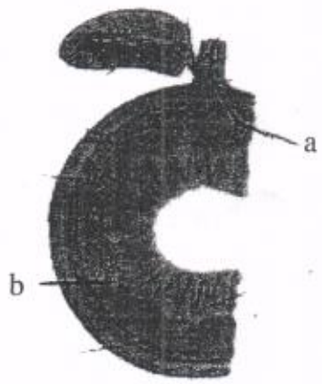
(B) 20

(C) 14

(D) 08

(Space for Rough Work)

112) Which option is correct for the region labelled as "a" and "b" in the given diagram of transverse section of gut?



(A) a = Nerve
b = Circular muscle

(B) a = Sub - mucosal plexus of vessels
b = Mucosal gland

(C) a = Villi
b = Mucosal gland

(D) a = Longitudinal muscle
b = Muscularis mucosa

113) Which of the following statement is correct.

(A) In honey - bee, functional male does not undergo meiosis during gamate formation

(B) In flagellaria, male is heterogametic

(C) In Bonellia, a hormone - like substance secreted by the proboscis is responsible for femaleness

(D) Due to the addition of one extra 'X' chromosome in Drosophila in uninucleated state gynandromorph is observed.

(Space for Rough Work)

114) Which of the following option is correct for recombinant DNA technology?

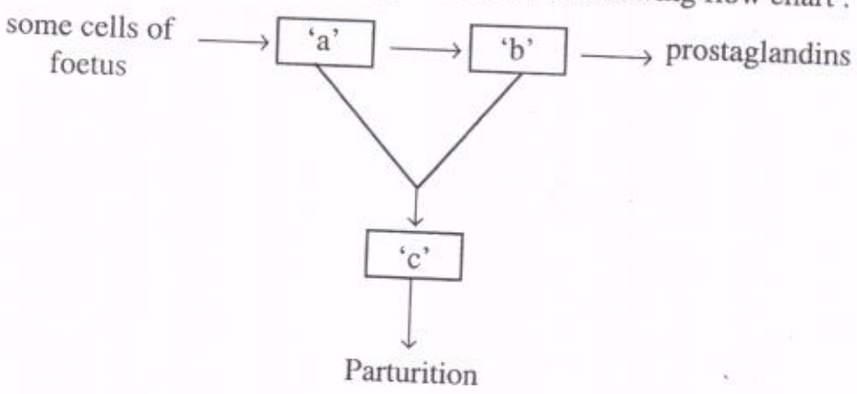
(A) Exo nuclease enzyme removes nucleotides from site within DNA

(B) Endo nuclease enzyme removes nucleotides from the ends of DNA

(C) Endo nuclease enzyme cut long polandric DNA strand

(D) Exo nuclease enzyme removes nucleotides from ends of DNA

115) What does 'a', 'b' and 'c' represents in the following flow chart :



(A) a = progesterone
b = oxytocin
c = slow contraction of uterus

(B) a = oxytocin
b = uterus
c = slow contraction of uterus

(C) a = placenta
b = oxytocin
c = vigorous contraction of uterus

(D) a = oxytocin
b = placenta
c = vigorous contraction in uterus

(Space for Rough Work)

116) In a healthy individual, GFR is about _____/ min, the volume of the filtrate per day is _____ li. and amount of micturition per day is _____li.

(A) 100 ml., 150 lit., 1.8 lit.

(B) 125 ml., 180 lit., 1.5 lit.

(C) 135 ml., 180 lit., 1.8 lit.

(D) 140 ml., 150 lit., 1.8 lit.

117) Pituitary gland is located in ['a'], which is a ['b'] of ['c'] bone?

(A) a = Sella turcica,
b = Raised surface
c = Ethmoid

(B) a = Reketh's pauch
b = Depression
c = Nasal

(C) a = Sella turcica
b = Depression
c = Sphenoid

(D) a = Reketh's pauch
b = Depression
c = Sphenoid

118) At a given time in a forest 900 deers are found, 100 more deers can be accommodated, then 1000 is _____.

(A) Population carrying capacity of or deer

(B) Mortality of deer

(C) Maximum natality

(D) Realised natality

(Space for Rough Work)

119) Which of the following is one of the direct causes of cancer?

(A) Obesity
(B) Inadequate O_2 supply
(C) Atherosclerosis
(D) Hypertension

120) Which of the following option is correct for the given statements, 'X', 'Y' and 'Z'?

Statements :

Statement 'X' : R.Q. of fat containing palmatic acid is less than one, whereas RQ of glucose is 1.

Statement 'Y' : Fat containing palmatic acid need less O_2 for respiration and glucose need more oxygen for respiration.

Statement 'Z' : Fat containing palmatic acid has much less oxygen in its constitution as compared to glucose.

Options :

(A) Statement 'X', 'Y' and 'Z' are correct. Statements 'Y' & 'Z' are correct explanation for 'X'

(B) Statement 'X' and 'Y' are correct and statement 'Z' is incorrect Statement 'Y' is correct explanation for 'X'.

(C) Statement 'X' and 'Z' are correct and statement 'Y' is incorrect Statement 'Z' is correct explanation for 'X'.

(D) Statement 'X' and 'Z' are incorrect and statement 'Y' is correct

(Space for Rough Work)