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(Write Roll Number from left side exactly as in Admit Card)

Signature of Invigilators

1. _____
2. _____

PAPER – II

Test Booklet No.

1410

Test Booklet Series :- **A**

LIFE SCIENCES

Time : $1\frac{1}{4}$ Hours

Maximum Marks : 100

Instructions for the Candidates

1. Write your roll number in the space provided on the top of this page and roll number with subject code on the OMR Sheet attached with this booklet.
2. This paper consists of fifty multiple choice type of questions. Answer *all* the questions. Each question carries *two* marks.
3. Each question has *four* alternative responses marked (A), (B), (C) and (D). You have to select only one correct response and mark it in the OMR Sheet with blue ink ball pen.

Example



Here (C) is the correct response.

4. Your responses to the questions are to be indicated only in the OMR Sheet pinned with this booklet. If the marking is put at any other place than in the OMR sheet, it will not be evaluated.
5. Two sheets are attached at the end of the booklet for rough work.
6. If you write your name or put any special mark on any part of the test booklet or OMR Sheet which may disclose in any way your identity, you will render yourself liable to disqualification.
7. Do not tamper or fold the OMR Sheet in anyway. If you do so your OMR Sheet will not be evaluated.
8. You should return the OMR Sheet along with this test booklet to the invigilator at the end of the examination and should not carry any paper with you outside the examination hall.
9. If the OMR sheet is not returned along with the test booklet, you will be disqualified.
10. No candidate shall be allowed to leave his/her seat or the examination hall/room till the end of the examination without the permission of the invigilator.

LIFE SCIENCES

Paper – II

1. When data is processed or converted to some meaningful form, it is called
 - (A) ALU
 - (B) CPU
 - (C) Information
 - (D) Exponentiation.
2. The programs that direct the computer in its own internal operations are called
 - (A) system hardware
 - (B) system program
 - (C) application program
 - (D) data bus.
3. The communication between the CPU and external module takes place via the
 - (A) address bus only
 - (B) data bus only
 - (C) address and data buses
 - (D) control bus only.
4. Disk and tape drives are commonly used as
 - (A) soft copy
 - (B) secondary storage devices
 - (C) primary storage devices
 - (D) operating system.
5. The program which translates high level language program into machine language program is termed as
 - (A) compiler
 - (B) source program
 - (C) object program
 - (D) application program.

6. Lysosomes are known as 'suicidal bags' because of
- (A) catalytic activity
 - (B) hydrolytic activity
 - (C) parasitic activity
 - (D) food vacuole.
7. Which one of the following is highly tolerant to salt stress (salinity) ?
- (A) *Allium cepa*
 - (B) *Beta vulgaris*
 - (C) *Zea mays*
 - (D) *Citrus limon*.
8. In which of the following structures *P*-cells are found ?
- (A) Vena cava
 - (B) SA node and AV node
 - (C) Bundle of His
 - (D) Ventricular myocardium.
9. The complement complex $\overline{\text{C3bBb}}$ is known as
- (A) classical pathway C3 convertase
 - (B) classical pathway C5 convertase
 - (C) alternative pathway C3 convertase
 - (D) alternative pathway C5 convertase.
10. Which one of the following *g* value in a centrifugation is required for deposition of the plasma membrane, fragments of the endoplasmic reticulum and large polyribosomes ?
- (A) 300, 000 $g \times 2h$
 - (B) 600 $g \times 10$ minutes
 - (C) 100,000 $g \times 60$ minutes
 - (D) 15,000 $g \times 5$ minutes
11. The only known *nickel containing enzyme* in higher plant is
- (A) ATP sulfurylase
 - (B) Lipoxygenase
 - (C) Cytochrome P450
 - (D) Urease.

12. Which one of the following is *not* found in mitochondrial matrix ?
- (A) Single-stranded DNA
 - (B) Double-stranded DNA
 - (C) RNA
 - (D) Ribosome.
13. Distance between the neighbouring base pairs of DNA is
- (A) 3.4 \AA
 - (B) 34 \AA
 - (C) 19.8 \AA
 - (D) 340 \AA .
14. Which of the following viruses is used for biocontrol of insect pests of plants ?
- (A) Cauliflower mosaic virus
 - (B) Rice tungro virus
 - (C) Cucumber mosaic virus
 - (D) Nuclear polyhedrosis virus.
15. A marine fish maintains its osmoregulation by the way of
- (A) excreting water
 - (B) excreting salts
 - (C) producing concentrated urine
 - (D) activating chloride cells.
16. In C_4 plants the enzyme responsible for primary fixation of CO_2 is
- (A) RuBP carboxylase
 - (B) Deoxycarboxylase
 - (C) PEP carboxylase
 - (D) All of these.
17. Through which foramen CSF passes from lateral ventricles to the third ventricle ?
- (A) Foramen of Monro
 - (B) Foramen of Luschka
 - (C) Foramen of Magendie
 - (D) Foramen Magnum.

18. When a heterozygous offspring is crossed with the homozygous recessive, the cross is called
- (A) reciprocal cross
 - (B) back cross
 - (C) test cross
 - (D) criss-cross.
19. Which one of the following species is the causative agent of Cutaneous leishmaniasis ?
- (A) *Leishmania donovani*
 - (B) *Leishmania chagasi*
 - (C) *Leishmania tropica*
 - (D) *Leishmania infantum*.
20. Matter and energy in the food chain run in parallel
- (A) upto carnivore level
 - (B) upto herbivore level
 - (C) upto decomposer level
 - (D) upto nutrient pool level.
21. Kisspeptin-GPR54 axis is involved in the regulation of
- (A) Thyroxine secretion
 - (B) ACTH secretion
 - (C) Puberty onset
 - (D) Insulin secretion.
22. Which one of the four useful dyes for fluorescent staining, emits green light ?
- (A) Rhodamine
 - (B) Texas Red
 - (C) FDA
 - (D) Cy 3.
23. The overall shape of Z-DNA is
- (A) short and wide
 - (B) short and narrow
 - (C) elongated and narrow
 - (D) elongated and wide.

24. The mechanism by which plants are protected against bacterial disease is called
- (A) amensalism
 - (B) parasitism
 - (C) commensalism
 - (D) antagonism.
25. Which one of the following is the correct sequence of the regions of embryonic brain in vertebrates ?
- (A) Mesencephalon, Diencephalon, Rhombencephalon, Telencephalon
 - (B) Diencephalon, Mesencephalon, Rhombencephalon, Telencephalon
 - (C) Telencephalon, Diencephalon, Mesencephalon, Rhombencephalon
 - (D) Rhombencephalon, Telencephalon, Mesencephalon, Diencephalon.
26. Nitrates are converted into nitrogen by
- (A) Dentrifying bacteria
 - (B) Nitrifying bacteria
 - (C) Ammonifying bacteria
 - (D) Nitrogen fixing bacteria.
27. Cholagogues are the substances that
- (A) increase bile secretion
 - (B) cause contraction of gall bladder
 - (C) cause dilatation of colon
 - (D) increase intestinal secretion.
28. The mammary gland of primate is an example of
- (A) simple tubular gland
 - (B) compound tubular gland
 - (C) simple tubuloalveolar gland
 - (D) compound alveolar gland.
29. Inflection point in a population growth curve is represented by.
- (A) K
 - (B) $K/2$
 - (C) r
 - (D) J.

30. The first appearance of amphibians on earth was during the period
- (A) Devonian
 - (B) Carboniferous
 - (C) Triassic
 - (D) Jurassic.
31. The resolution of electron microscope is higher than optical microscope because of
- (A) larger aperture
 - (B) smaller wavelength of electrons
 - (C) greater wavelength of electrons
 - (D) smaller focal length of the lens.
32. Multiple forms of enzymes with the same catalytic activity but with different structures are called
- (A) Holoenzyme
 - (B) Isoenzyme
 - (C) Prosthetic groups
 - (D) Apoenzymes.
33. Spherical subunits of eukaryotic chromatin composed of a core particle consisting of an octamer of histones and 146 nucleotide pairs are called
- (A) Polysomes
 - (B) Centrosomes
 - (C) Lysosomes
 - (D) Nucleosomes.
34. The suppression of action of a gene by another non-alleomorphic gene is called
- (A) Epistasis
 - (B) Hyperstasis
 - (C) Pseudo-dominance
 - (D) Hypostasis.
35. Which one of the following proteins is a major component of Cytoskeleton ?
- (A) Tubulin
 - (B) Fibrin
 - (C) Osmotin
 - (D) Porin.

36. Which of the following pairs of antibodies can activate the complement ?
- (A) IgA and IgD
 - (B) IgE and IgD
 - (C) IgG and IgE
 - (D) IgG and IgM.
37. Which is the *naturally* occurring auxin transport inhibitor ?
- (A) 1-N-naphthylphthalamic acid (NPA)
 - (B) Quercetin (flavonol)
 - (C) 2, 3, 5-Triiodobenzoic acid (TIBA)
 - (D) 1-Naphthoxyacetic acid (1 NOA).
38. Which cells of the gastric gland secrete intrinsic factor ?
- (A) Parietal cells
 - (B) Peptic cells
 - (C) Neck mucous cells
 - (D) Argentaffine cells.
39. The disease commonly called 'LOCK JAW' is caused by
- (A) *Bacillus pertusis*
 - (B) *Mycobacterium*
 - (C) *Clostridium tetani*
 - (D) *Treponema pallidum*.
40. In congenital nephrotic syndrome, which one of the following proteins shows structural abnormality due to mutation ?
- (A) Nephtrin
 - (B) Collagen-IV
 - (C) Fibronectin
 - (D) Fodrin.

41. One of the conditions for biological magnification to occur in the food chain is that
- (A) the pollutant in the environment is both persistent and lipophilic
 - (B) the pollutant is very high and degradable
 - (C) the level of phosphorous is reduced
 - (D) the level of chemical oxygen demand of water is reduced.
42. Which one of the following characterizes REM sleep ?
- (A) desynchronized EEG and high amplitude EMG
 - (B) synchronized EEG and low amplitude EMG
 - (C) desynchronized EEG and low amplitude EMG
 - (D) synchronized EEG and high amplitude EMG.
43. The two strands in DNA helix are held together by
- (A) Sulphide bonds
 - (B) Phosphate bonds
 - (C) Hydrogen bonds
 - (D) Van der Waal forces.
44. In human Myoclonic Epilepsy and Ragged-Red Fibre disease syndrome (MERRF) is caused by
- (A) a mutation in X chromosome gene
 - (B) a mutation in a mitochondrial DNA gene
 - (C) trisomy 13
 - (D) trisomy 18.
45. Lesions in anterior hypothalamus cause
- (A) Hypothermia
 - (B) Hyperthermia
 - (C) Homeothermia
 - (D) Horripilation.

46. Which one is correct for blood volume per kg of the body wt. in normal adult human ?
- (A) 55 — 65 ml/kg body wt.
 - (B) 75 — 85 ml/kg body wt.
 - (C) 105 — 115 ml/kg body wt.
 - (D) 125 — 135 ml/kg body wt.
47. The lakes which are deep, generally clear but deficient in nutrients and without much biological activity are called
- (A) Eutrophic lakes
 - (B) Oligotrophic lakes
 - (C) Dystrophic lakes
 - (D) Hypertrophic lakes.
48. This year (2010) is being observed as
- (A) International year of Conservation of water
 - (B) International year of war against AIDS
 - (C) International year of Biodiversity
 - (D) International year of war against Global warming.
49. Under which phase of bacterial growth, bacteria increase in size but do not divide ?
- (A) Log phase
 - (B) Lag phase
 - (C) Stationary phase
 - (D) Death phase.
50. Recently semisynthetic re-creation of life was achieved using the organism
- (A) *Physarum polycephalum*
 - (B) *Mycoplasma mycoides*
 - (C) *Agrobacterium tumefaciens*
 - (D) *Hemophilus influenza*.