Question Booklet No.: Question Booklet Series: **A**

ENTRANCE TEST - 2025

School of Biological Sciences

Bioresources

Total Questions: 60 **Roll No.** | | | | | | |

Time Allowed: 70 Minutes

Important Instructions for Candidates:

1. Candidates shall compulsorily use only **blue/ black ball point pen**. In no case gel/ink pen or pencil should be used.
2. Compulsorily write your **roll number** in the space provided at the top of this page of the question booklet.
3. Fill up the necessary information in the spaces provided on OMR Answer sheet including **Question Booklet Number** and **Question Booklet Series**.
4. OMR Answer sheet has an original copy and a candidate's copy glued beneath it at the top. While making entries in the original copy, candidate should ensure that the **two copies are aligned properly** so that the entries made in the original copy against each item are exactly copied in the candidate's copy.
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7. **Do not darken more the one circle of option for any question. A question with more than one darkened response shall be considered wrong.**
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9. Only those candidates who obtain positive score in Entrance Test shall be eligible for admission.
10. Do not make any stray mark on the OMR sheet as this may lead to errors while scanning.
11. OMR answer sheet must be handled carefully and it should not be folded or mutilated, as in such case it will not be properly evaluated by the machine.
12. No Electronic gadgets including calculators, mobiles, smart watches, blue tooth etc. shall be permitted inside the examination hall.
13. Rough work, if any, should be done on the blank sheets provided with the question booklet.
14. Ensure that the OMR Sheet is signed by the Examinee as well as by the invigilator.
15. At the end of the examination, fold the OMR Sheet along the crease on the top and tear off the top strip to separate the Original OMR Sheet from the Duplicate Copy.
16. Hand over the Original OMR answer sheet to the invigilator and retain the candidate's copy of OMR, Question Booklet and Admit card for your reference.
17. If any of the information in the response Sheet/Question Paper has been found missing or not mentioned as stated above, the candidate is solely responsible for that lapse.
18. Any deficiency on the OMR shall be the responsibility of the candidate himself/herself.

Q.1. Water melts at:

A) 6°F
B) Zero °F
C) 100°C
D) 32°F

Q.2. The pH of solution can be accurately measured with the help of special glass electrode that is selectively sensitive to

A) H^+
B) Mg^+
C) Cl^-
D) OH^-

Q.3. The sum of all osmotic potentials caused due to dissolution of different solutes in cell sap is called:

A) Osmolarity
B) Osmolality
C) Combined osmotic potential
D) None of the three

Q.4. Peter Mitchell proposed

A) Chemiosmiotic hypothesis
B) Conformational coupling hypothesis
C) Chemical Coupling hypothesis
D) All of the above

Q.5. The structure which surrounds the embryonic root of rice grains:

A) Radicle
B) Coleorhiza
C) Seminal roots
D) Secondary roots

Q.6. Which of the following is Indian Corn?

A) Tripsacum
B) Zeamays
C) Euchlaena
D) Teosinte

Q.7. Retting in jute fibres takes place by the action of:

A) Water
B) Microorganisms
C) Chemicals
D) All of the above

Q.8. An oleo resin Balsam is obtained from

A) Accacia arabica
B) Moranga
C) Shorea Robusta
D) Abies balsamea

Q.9. The longest Rod shaped virus is:

A) TMV
B) Potato Virus X
C) Potato Virus Y
D) Citrus tristeza

Q.10. Stanely Pruisiner was awarded Noble prize in Medicine for the discovery of

A) Virus
B) Viroid
C) Prions
D) Bacteria

Q.11. The microbes employed to produce SCP (Single cell protein)

A) Geotrichum candidum
B) Aspergillus oryzae
C) Rhodopseudomonas capsulate
D) All of the above

Q.12. The sterile region of gills in *Agaricus*:

A) Trama
B) Subhymenium
C) Paraphysis
D) All of the above

Q.13. Poisonous part of *Atropa* plant is:

A) Root
B) Leaf
C) Berry
D) All of the above

Q.14. Vinblastine and Vincrestine are obtained from:

A) Sasura Costus
B) Atropa
C) Catharanthus roseus
D) *Reheum emodi*

Q.15. The fungal infection Tinea capiles can be cured by the application of leaf extracts of

A) Lavender
B) Clove
C) Basmiti rice
D) Neem

Q.16. Active ingredient emodin is present in which part of Himalayan rhubarb

A) Underground stem
B) Root
C) Both A &B
D) None

Q.17. According to Gill and Combs 1963 which of the following is Type IV Hypersensitivety

A) Immunoglobin E (IgE) mediated immediate reaction
B) An Antibody mediated reaction involving IgG or IgM
C) Cytotoxic cell mediated delayed hypersensitivity reaction involving T cells.
D) An immune complex mediated reaction involving IgG, Complement system and phagocytes

Q.18. Antigens are structurally and functionally characterized by their:

A) Antigenicity
B) Specificity
C) Immunogenecity
D) All of the above

Q.19. The primary organ of Immune system is:

A) Thymus
B) Lymph Nodes
C) Spleen
D) Skin

Q.20. The phenomenon of Phagocytosis was given by:

A) P. Langerhans
B) E. E. Metchnikoff
C) L. Pasteur
D) S. Prusiner

Q.21. The term cell was first used by

A) Flemming
B) Robert Hook
C) Anton Van Leeuweanhak
D) Harvey

Q.22. Animal cells lack:

A) Vaculoes
B) Lysosoes
C) Plastids
D) Ribosomes

Q.23. The unit membrane mainly consists of

A) Starch and Lipids
B) Sugars and lipids
C) Proteins and sugars
D) Proteins and lipids.

Q.24. The F1 particles are present in:

A) Nucleus
B) Golgi bodies
C) Chloroplast
D) Mitochondria

Q.25. DNA Replication involves the synthesis of short DNA segments which are called as:

A) DNA Ligases
B) DNA Polymerases
C) RNA Topoisomerases
D) Okazaki Fragments.

Q.26. According to Meselson and Stahl DNA replication occurs by:

A) Semiconservative mechanism
B) Conservative mechanism
C) Dispersive mechanism
D) None of the above three.

Q.27. Synthesis of RNA from DNA is called:

A) Transformation
B) Duplication
C) Transcription
D) Transduction

Q.28. The nucleic acid (DNA) is present in:

A) Nucleus
B) Chloroplast
C) Mitochondria
D) All of the above

Q.29. Which of the following is trisaccharide:

A) Succrose
B) Maltose
C) Lactose
D) Raffinose

Q.30. The storage polysaccharides is:

A) Cellulose
B) Pectin
C) Chitin
D) Inulin

Q.31. The double phospho glyceride is:

A) Phosphaldyle ethanol amine
B) Phosphaldyleserine
C) Phosphaldyle inositol
D) Cardiolipin

Q.32. B-Oxidation of fatty acids takes place in

A) Mitochondria
B) Peroxyisome
C) Cytosol
D) All of the above

Q.33. The first cell free enzyme preparation by Eduard Buchner (1877) is:

A) Trypsin
B) Pepsin
C) Zymase
D) Urease

Q.34. Apoenzyme is the

A) Protein part
B) Non protein part
C) Prosthetic Group
D) Active site

Q.35. Which of the following acts as co factor

A) Co enzyme 1
B) Co enzyme A
C) Thymine Pyrophosphate
D) All of the above

Q.36. Induced fit theory to explain the specificity of enzyme was proposed by:

A) Jacob and Mond
B) Fischer
C) Koshland
D) None of the above.

Q.37. Liquid Wax similar to sperm whale oil is produced by the seeds of :

A) Leucaena leucocephala
B) Parthenium argentatium
C) Simmondsia chienensis
D) Phosphocarpus tetragonaloba

Q.38. The depletion of Ozone is caused by:

A) Hydroflurocarbons
B) Nitrous oxide
C) Methyl Bromide
D) Methane

Q.39. The soil pollution is mainly caused by:

A) Synthetic fungicides
B) Pesticides
C) Herbicides
D) All of the above.

Q.40. Source of carbon in the non – living world is:

A) CO2 of Air and water
B) Rocks
C) Coal
D) All of the above

Q.41. Advanced Genetic Engineering within the plants will lead to :

A) Disease resistance
B) Increased yield
C) Stress tolerance
D) All of the above

Q.42. The cloning vectors capable of replicating in more than one type of host:

A) Plasmid vector
B) Cosmid vector
C) Shuttle vector
D) All of the above

Q.43. Cry proteins are produced in transgenic cotton by inserting gene from:

A) Fungi
B) Bacteria
C) Virus
D) Nematode

Q.44. On the basis of Voltinism how many kinds of races in mulberry silk worm are:

A) 1
B) 2
C) 3
D) 4

Q.45. The practice and secret of silk making spread to Korea from:

A) Japan
B) China
C) Tibet
D) India

Q.46. In silk worm the Pebrine disease is caused by:

A) Nosema bombycis
B) Staphyloccus sp
C) Virus
D) Beauveria bassiana

Q.47. The viral disease of honey bee is:

A) American foulbrood
B) European foulbrood
C) Chalkbrood
D) Chronic bee paralysis disease

Q.48. The mutation which change the codon back to the wild type of Amino Acid is called:

A) Suppressor Mutation
B) True reversion
C) Forward Mutation
D) None of the Above

Q.49. Gene which hides the effect of another gene is called

A) Co-dominant
B) Epistatic gene
C) Hypostatic gene
D) Lethal gene.

Q.50. Absence of one chromosome in a diploid set is called as

A) Monosomic
B) Nullisomic
C) Trisomy
D) Pentasomic

Q.51. Functions of DNA are:

A) Replication
B) Gene expression
C) Transcription
D) All of the above

Q.52. Z DNA is:

A) Right handed double helix formed under hydrolyisng conditions
B) Right handed double helix formed under normal conditions
C) Left handed double helix with Zig Zag pattern
D) None of the above.

Q.53. In a breeding program the mating of relatives within a specific line to maintain desirable trait is:

A) Outcrossing
B) Cross breeding
C) Line breeding
D) None of the above

Q.54. In a population of species the genetic diversity reduces due to

A) Demographic bottlenecks

B) Genetic Drifts

C) Inbreeding depression

D) All of the Above

Q.55. The exotic breed of cattle is

A) Brown swiss

B) Krishna Valley

C) Gir

D) Rathi

Q.56. As per IUCN Redlist criterion the Critically Endangered (CR) species have:

A) High risk of Extinction in the Wild

B) Extremely High risk of Extinction in the wild

C) High risk of endangerment in the wild

D) Likely to become endangered soon

Q.57. The most important for of *Ex-situ* Conservation is

A) Botanical garden

B) Protected areas

C) Biosphere Reserves

D) National Parks

Q.58. Ramsar convention:

A) Convention on Wetlands of international Importance

B) Convention on International trade in endangered species of Wild Fauna and flora

C) International undertaking of plant genetic resources and farmers Rights

D) International Tropical Timber Agreement

Q.59. Chinese carp is

A) *Labeo rohita*

B) Labeo calbasu

C) Catala catala

D) Hypophthalmichthys molitrix

Q.60. Brown trout is scientifically called as:

A) Oncorhynchus mykiss

B) Salvelinus fontinalis

C) Salmo trutta

D) None of the above

Sr. No. 037

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

BIORESOURCES

Question Booklet Series **A**

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Time Allowed : 70 Minutes

Roll No. : | | | | | | |

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1. In which year the International Union for the Conservation of Nature and Natural Resources (IUCN) was established ?

(A) 1944

(B) 1948

(C) 1952

(D) 1956

2. According to biological species concept, species are groups of potentially interbreeding natural populations that are:

(A) Reproductively isolated

(B) Geographically isolated

(C) Both (A) and (B)

(D) Neither (A) nor (B)

3. Who among the following proposed 'Universal' model for energy flow?

(A) Evans

(B) Linnaeus

(C) Odum

(D) Gilbert

4. A broadscale distribution of world vegetation and associated animals with a distinct ecological community of plants and animals living together in a particular climate is termed as :

(A) Biome

(B) Taiga biome

(C) Tundra biome

(D) Desert biome

5. In which year, Vavilov first published his concept of centres of origin of cultivated plants ?

(A) 1916

(B) 1922

(C) 1926

(D) 1930

6. What is name of a commercial drug, that has a major ingredient of *Arnebiabenthamii*, with antifungal, antibacterial, anti-inflammatory and wound-healing properties ?

(A) Atropine

(B) Gaozaban

(C) Morphine

(D) Digoxin

7. The scientific name of common dandelion is :

(A) *Malva sylvestris*

(B) *Cichorium intybus*

(C) *Taraxacum officinale*

(D) *Atropa acuminata*

8. Jute is a bast fibre that is harvested from the plant :

(A) *Corchorus capsularis*

(B) *Boehmeria nivea*

(C) *Cannabis sativa*

(D) *Linum usitatissimum*

9. The scientific name of rainbow trout is:

(A) *Salmo platycephalus*

(B) *Salvelinus fontinalis*

(C) *Salmo trutta*

(D) *Oncorhynchus mykiss*

0. Which of the following is a fungal disease of honey bees ?

(A) Sac brood disease

(B) Chalkbrood disease

(C) Nosema disease

(D) American foul brood

1. Which of the following is not a viral disease of silkworms ?

(A) Grasserie

(B) Cytoplasmic polyhedrosis

(C) Pebrine

(D) Gattine

12. To explain the basis of heterosis, who among the following proposed overdominance hypothesis ?

(A) Shull and East

(B) Jones

(C) Fisher

(D) Mather

13. SCP stands for :

(A) Single cell protein

(B) Singel cell polysaccharide

(C) Single cell polystyrene

(D) Somatic cell proliferation

14. Which of the following is not a cheese producing microbe ?

(A) *Streptococcus lactis*

(B) *Penicillum candidum*

(C) *Brevibacterium linens*

(D) *Beauveria bassiana*

15. In which year, Alexander Fleming was awarded Nobel Prize for his study on antibiotics ?

(A) 1930

(B) 1945

(C) 1950

(D) 1962

16. *Saccharomyces carlsbergensis* is used to prepare :

(A) Cheese

(B) Beer

(C) Antibiotics

(D) Bread

17. Enthalpy, the heat content of the reacting system, is represented by :

(A) $H = U - PW$

(B) $H = U + PW$

(C) $H - U - PV$

(D) $H = U + PV$

18. According to first law of thermodynamics :

(A) Energy can be created but not destroyed

(B) Energy can be created and destroyed

(C) Energy can neither be created nor destroyed

(D) None of the above

19. Which of the following is true for pH ?

(A) $pH = -\log[H+]$

(B) $pH = \log \frac{1}{[H+]}$

(C) $pH = \log [H+]$

(D) Both (A) and (B)

20. Buffers are mixtures of :

(A) Weak acids and their conjugate bases

(B) Strong acids and their conjugate bases

(C) Weak alkaloids and their conjugate bases

(D) Strong alkaloids and their conjugate bases

21. The statement "*omnis cellula e cellula*" was proposed by :

(A) Robert Hooke

(B) Anton van Leeuwenhoek

(C) Rudolf Virchow

(D) Schleiden and Schwann

22. In which year, Jonathan Singer and Garth Nicolson proposed fluid-mosaic model of plasma membrane ?

(A) 1970

(B) 1972

(C) 1974

(D) 1976

23. Which of the following was earlier known as GERL (Golgi complex–ER–lysosome) ?

(A) *trans*-Golgi network

(B) *cis*-Golgi network

(C) Endoplasmic reticulum

(D) Lysosomes

24. The period between the end of mitosis phase and the start of DNA replication is called as :

(A) G1 phase

(B) G2 phase

(C) S phase

(D) None of the above

25. The *zona pellucida* of most mammalian eggs is composed mainly of :

(A) ZP1 glycoproteins

(B) ZP2 glycoproteins

(C) ZP3 glycoproteins

(D) All of the above

26. Which of the following is most appropriate for extra-embryonic membranes ?

(A) Amnion, chorion

(B) Yolk sac, allantois

(C) Amnion, chorion, yolk sac

(D) Amnion, chorion, yolk sac, allantois

27. Pollination in which the pollen from the anthers of one flower are transferred to the stigma of another flower borne on the same plant is termed as :

(A) Cleistogamy

(B) Homogamy

(C) Geitonogamy

(D) Xenogamy

28. The development of reproductive propagules without meiosis and syngamy is called as :

(A) Porogamy

(B) Mesogamy

(C) Apomixis

(D) Siphonogamy

29. In which plant, Frits Went discovered Auxin hormone ?

(A) *Avena sativa*

(B) *Triticum aestivum*

(C) *Brassica oleracea* var. *botrytis*

(D) *Solanum tuberosum*

30. The downward curvature of leaves that occurs when the upper (adaxial) side grows faster than the lower (abaxial) side is termed as :

(A) Thermonasty

(B) Epinasty

(C) Nyctinasty

(D) Thigmonasty

31. Which of the following is not true for innate immune response ?

(A) Antigen specific

(B) Rapid response

(C) Limited diversity

(D) Found both in vertebrates and invertebrates

32. The only class of immunoglobulins that passes through the placenta and enabling the mother to transfer her immunity to the foetus is :

(A) IgG

(B) IgA

(C) IgM

(D) IgE

33. In photosynthesis, light independent process is also called as :

(A) Carbon fixation

(B) Calvin Benson cycle

(C) Both (A) and (B)

(D) Neither (A) nor (B)

34. Hatch-Slack pathway is also known as :

(A) C_3 cycle

(B) C_4 cycle

(C) CAM pathway

(D) None of the above

35. Who discovered urea cycle ?

(A) Krebs and Henseleit

(B) Friedrich Wohler

(C) Antoine Lavoisier

(D) James Sumner

36. Glycolytic pathway, also known as Embden-Meyerhof pathway, is an example of :

(A) Anaerobic fermentation

(B) Aerobic fermentation

(C) Phosphorylation

(D) None of the above

37. Choose the correct empirical formula of monosaccharides :

(A) $(CHO)_n$

(B) $(CH_2O)_n$

(C) $(CH_3O)_n$

(D) $(CH_4O)_n$

38. GAG stands for :

(A) Glycoacetoglycans

(B) Glycoacylglycans

(C) Glycoamineglycans

(D) Glycosaminoglycans

39. Choose the correct statement for saturated fatty acids :

(A) Linear chains of CH_2 groups linked by carbon-carbon double bonds

(B) Linear chains of CH groups linked by carbon-carbon single bonds

(C) Linear chains of CH_4 groups linked by carbon-carbon single bonds

(D) Linear chains of CH_2 groups linked by carbon-carbon single bonds

40. Who introduced the term "Sphingolipids" ?

(A) Herbert Carter

(B) Michael Garbriel

(C) Dietrich Stephan

(D) Adam Gilbert

41. Which one among the following is the first amino acid that was discovered ?

(A) Glycine

(B) Alanine

(C) Asparagine

(D) Lysine

42. In which year, Linus Pauling and Robert Corey proposed two structures namely α helix and β pleated sheets of proteins?

(A) 1940

(B) 1951

(C) 1963

(D) 1981

43. Who coined the term "enzyme" ?

(A) James Sumner

(B) Friedrich Kuhne

(C) Louis Pasteur

(D) Antoine Reaumur

44. The protein part of coenzyme is called as :

(A) Holoenzyme

(B) Apoenzyme

(C) Cofactors

(D) None of the above

45. In an incomplete dominance experiment, a four O'clock plant (*Mirabilis jalapa*) with red flowers were crossed with the white flowers, pink flowered F1 plants were obtained. If the pink flowered F1 plants are self-crossed, what would be F2 plants phenotypic ratio ?

(A) 3 : 1

(B) 9 : 3 : 1

(C) 1 : 2 : 1

(D) 1 : 4 : 1

46. How many qualitative traits Mendel studied for his experiment on *Pisum sativum* ?

(A) 4

(B) 7

(C) 8

(D) 9

47. Which of the following is not true for Z-DNA ?

(A) Z-DNA is a left-handed double helix structure

(B) Z-DNA is thinner than B-DNA

(C) In Z-DNA, the repeating unit is 2 base pairs

(D) In Z-DNA, the repeating unit is a 1 base pair

48. While describing the aneuploidy in diploid organisms, the correct formula for "double trisomic" condition is :

(A) $2n + 1 + 1$

(B) $2n - 1 - 1$

(C) $2n + 1$

(D) $2n + 2$

49. The model of replication, where a parental duplex DNA gives rise to two identical daughter duplexes DNA with each containing one original parental strand and one new strand, is called as :

(A) Conservative replication

(B) Semiconservative replication

(C) Dispersive replication

(D) None of the above

50. How many codons in the genetic code specify the 20 amino acids, most commonly found in proteins ?
(A) 61 sense codons, 3 stop codons
(B) 62 sense codons, 3 stop codons
(C) 63 sense codons, 3 stop codons
(D) 64 sense codons, 3 stop codons

51. Who among the following formulated operon model ?
(A) William Harvey
(B) Jacob and Monod
(C) Weiss and Hurwitz
(D) Robin Holliday

52. DNA dependent RNA synthesis is catalyzed by the enzyme known as :
(A) DNA dependent RNA Polymerase
(B) RNA dependent RNA Polymerase
(C) Gyrase
(D) Topoisomerase

53. The oxidation of ammonium ions to nitrite and subsequent oxidation of nitrite to nitrate is called as :
(A) Ammonification
(B) Nitrification
(C) Denitrification
(D) Anammox

54 Which of the following is true for acid rain ?
(A) pH of the rain water drops below 5.6
(B) pH of the acid rain ranges between 4.2 and 4.4
(C) Airborne sulfuric acid and nitric acid make water more acidic
(D) All of the above

55. An illness that begins when large amounts of nitrates in water are ingested by an infant and converted to nitrite by the digestive system is known as :
(A) Minamata disease
(B) Itai-itai disease
(C) Blue baby syndrome
(D) Down's syndrome

56. Levels of ozone in the stratosphere are measured in :
(A) Dobson Units
(B) Cubic millimeters
(C) Cubic yards
(D) Milliliter per litre

57. Who is referred to as father of chromatography ?
(A) Tswet
(B) Martin
(C) Synge
(D) Karlson

58. SDS-PAGE stands for :
(A) Sodium decylsulfate polyacrylamide gel electrophoresis
(B) Sodium desulfate polyacrylamine gel electrophoresis
(C) Sodium decisulfate polyacrylamide gel electrophoresis
(D) Sodium dodecylsulfate polyacrylamide gel electrophoresis

59. "Recombinants are hybrid DNA molecules consisting of autonomously replicating DNA segment and inserted elements". Such molecules are also called as :
(A) Plasmids
(B) Cosmids
(C) Chimera
(D) Phagemids

60. What are the pre-requisites for polymerase chain reaction ?
(A) Primers only
(B) Primers and *Taq* polymerase
(C) Primers, *Taq* polymerase and DNA
(D) Primers and DNA

Sr. No. 082

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

BIORESOURCES

Total Questions : 60
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Question Booklet Series **B**

Roll No. : | | | | | | |

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Sr. No. 079

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

BIORESOURCES

Total Questions : 60
Time Allowed : 70 Minutes

Question Booklet Series C

Roll No. : | | | | | | |

Instructions for Candidates :

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2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
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4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be **'Negative Marking'** for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
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Sr. No. 052

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

BIORESOURCES

Question Booklet Series **D**

Total Questions : 60
Time Allowed : 70 Minutes

Roll No. : | | | | | | |

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1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be **'Negative Marking'** for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

SEAL

1. Which of the following is not true for innate immune response ?

(A) Antigen specific

(B) Rapid response

(C) Limited diversity

(D) Found both in vertebrates and invertebrates

2. The only class of immunoglobulins that passes through the placenta and enabling the mother to transfer her immunity to the foetus is :

(A) IgG

(B) IgA

(C) IgM

(D) IgE

3. In photosynthesis, light independent process is also called as :

(A) Carbon fixation

(B) Calvin Benson cycle

(C) Both (A) and (B)

(D) Neither (A) nor (B)

4. Hatch-Slack pathway is also known as :

(A) C_3 cycle

(B) C_4 cycle

(C) CAM pathway

(D) None of the above

5. Who discovered urea cycle ?

(A) Krebs and Henseleit

(B) Friedrich Wohler

(C) Antoine Lavoisier

(D) James Sumner

6. Glycolytic pathway, also known as Embden-Meyerhof pathway, is an example of :

(A) Anaerobic fermentation

(B) Aerobic fermentation

(C) Phosphorylation

(D) None of the above

7. Choose the correct empirical formula of monosaccharides :

(A) $(CHO)_n$

(B) $(CH_2O)_n$

(C) $(CH_3O)_n$

(D) $(CH_4O)_n$

8. GAG stands for :

(A) Glycoacetoglycans

(B) Glycoacylglycans

(C) Glycoamineglycans

(D) Glycosaminoglycans

9. Choose the correct statement for saturated fatty acids :

(A) Linear chains of CH_2 groups linked by carbon-carbon double bonds

(B) Linear chains of CH groups linked by carbon-carbon single bonds

(C) Linear chains of CH_4 groups linked by carbon-carbon single bonds

(D) Linear chains of CH_2 groups linked by carbon-carbon single bonds

10. Who introduced the term "Sphingolipids" ?

(A) Herbert Carter

(B) Michael Garbriel

(C) Dietrich Stephan

(D) Adam Gilbert

11. Which one among the following is the first amino acid that was discovered ?

(A) Glycine

(B) Alanine

(C) Asparagine

(D) Lysine

12. In which year, Linus Pauling and Robert Corey proposed two structures namely α helix and β pleated sheets of proteins?

(A) 1940

(B) 1951

(C) 1963

(D) 1981

13. Who coined the term "enzyme" ?

(A) James Sumner

(B) Friedrich Kuhne

(C) Louis Pasteur

(D) Antoine Reaumur

14. The protein part of coenzyme is called as :

(A) Holoenzyme

(B) Apoenzyme

(C) Cofactors

(D) None of the above

15. In an incomplete dominance experiment, a four O'clock plant (*Mirabilis jalapa*) with red flowers were crossed with the white flowers, pink flowered F1 plants were obtained. If the pink flowered F1 plants are self-crossed, what would be F2 plants phenotypic ratio ?

(A) 3 : 1

(B) 9 : 3 : 1

(C) 1 : 2 : 1

(D) 1 : 4 : 1

16. How many qualitative traits Mendel studied for his experiment on *Pisum sativum* ?

(A) 4

(B) 7

(C) 8

(D) 9

17. Which of the following is not true for Z-DNA ?

(A) Z-DNA is a left-handed double helix structure

(B) Z-DNA is thinner than B-DNA

(C) In Z-DNA, the repeating unit is 2 base pairs

(D) In Z-DNA, the repeating unit is a 1 base pair

18. While describing the aneuploidy in diploid organisms, the correct formula for "double trisomic" condition is :

(A) $2n + 1 + 1$

(B) $2n - 1 - 1$

(C) $2n + 1$

(D) $2n + 2$

19. The model of replication, where a parental duplex DNA gives rise to two identical daughter duplexes DNA with each containing one original parental strand and one new strand, is called as :

(A) Conservative replication

(B) Semiconservative replication

(C) Dispersive replication

(D) None of the above

20. How many codons in the genetic code specify the 20 amino acids, most commonly found in proteins ?

(A) 61 sense codons, 3 stop codons

(B) 62 sense codons, 3 stop codons

(C) 63 sense codons, 3 stop codons

(D) 64 sense codons, 3 stop codons

21. Who among the following formulated operon model ?
(A) William Harvey
(B) Jacob and Monod
(C) Weiss and Hurwitz
(D) Robin Holliday

22. DNA dependent RNA synthesis is catalyzed by the enzyme known as :
(A) DNA dependent RNA Polymerase
(B) RNA dependent RNA Polymerase
(C) Gyrase
(D) Topoisomerase

23. The oxidation of ammonium ions to nitrite and subsequent oxidation of nitrite to nitrate is called as :
(A) Ammonification
(B) Nitrification
(C) Denitrification
(D) Anammox

24. Which of the following is true for acid rain ?
(A) pH of the rain water drops below 5.6
(B) pH of the acid rain ranges between 4.2 and 4.4
(C) Airborne sulfuric acid and nitric acid make water more acidic
(D) All of the above

25. An illness that begins when large amounts of nitrates in water are ingested by an infant and converted to nitrite by the digestive system is known as :
(A) Minamata disease
(B) Itai-itai disease
(C) Blue baby syndrome
(D) Down's syndrome

26. Levels of ozone in the stratosphere are measured in :
(A) Dobson Units
(B) Cubic millimeters
(C) Cubic yards
(D) Milliliter per litre

27. Who is referred to as father of chromatography ?
(A) Tswet
(B) Martin
(C) Synge
(D) Karlson

28. SDS-PAGE stands for :
(A) Sodium decylsulfate polyacrylamide gel electrophoresis
(B) Sodium desulfate polyacrylamine gel electrophoresis
(C) Sodium decisulfate polyacrylamide gel electrophoresis
(D) Sodium dodecylsulfate polyacrylamide gel electrophoresis

29. "Recombinants are hybrid DNA molecules consisting of autonomously replicating DNA segment and inserted elements". Such molecules are also called as :
(A) Plasmids
(B) Cosmids
(C) Chimera
(D) Phagemids

30. What are the pre-requisites for polymerase chain reaction ?
(A) Primers only
(B) Primers and *Taq* polymerase
(C) Primers, *Taq* polymerase and DNA
(D) Primers and DNA

31. In which year the International Union for the Conservation of Nature and Natural Resources (IUCN) was established ?
(A) 1944
(B) 1948
(C) 1952
(D) 1956

32. According to biological species concept, species are groups of potentially interbreeding natural populations that are:

(A) Reproductively isolated

(B) Geographically isolated

(C) Both (A) and (B)

(D) Neither (A) nor (B)

33. Who among the following proposed 'Universal' model for energy flow?

(A) Evans

(B) Linnaeus

(C) Odum

(D) Gilbert

34. A broadscale distribution of world vegetation and associated animals with a distinct ecological community of plants and animals living together in a particular climate is termed as :

(A) Biome

(B) Taiga biome

(C) Tundra biome

(D) Desert biome

35. In which year, Vavilov first published his concept of centres of origin of cultivated plants ?

(A) 1916

(B) 1922

(C) 1926

(D) 1930

36. What is name of a commercial drug, that has a major ingredient of *Arnebiabenthamii*, with antifungal, antibacterial, anti-inflammatory and wound-healing properties ?

(A) Atropine

(B) Gaozaban

(C) Morphine

(D) Digoxin

37. The scientific name of common dandelion is :

(A) *Malva sylvestris*

(B) *Cichorium intybus*

(C) *Taraxacum officinale*

(D) *Atropa acuminata*

38. Jute is a bast fibre that is harvested from the plant :

(A) *Corchorus capsularis*

(B) *Boehmeria nivea*

(C) *Cannabis sativa*

(D) *Linum usitatissimum*

39. The scientific name of rainbow trout is:

(A) *Salmo platycephalus*

(B) *Salvelinus fontinalis*

(C) *Salmo trutta*

(D) *Oncorhynchus mykiss*

40. Which of the following is a fungal disease of honey bees ?

(A) Sac brood disease

(B) Chalkbrood disease

(C) Nosema disease

(D) American foul brood

41. Which of the following is not a viral disease of silkworms ?

(A) Grasserie

(B) Cytoplasmic polyhedrosis

(C) Pebrine

(D) Gattine

42. To explain the basis of heterosis, who among the following proposed overdominance hypothesis ?

(A) Shull and East

(B) Jones

(C) Fisher

(D) Mather

43. SCP stands for :

(A) Single cell protein

(B) Singel cell polysaccharide

(C) Single cell polystyrene

(D) Somatic cell proliferation

44. Which of the following is not a cheese producing microbe ?

(A) *Streptococcus lactis*

(B) *Penicillum candidum*

(C) *Brevibacterium linens*

(D) *Beauveria bassiana*

45. In which year, Alexander Fleming was awarded Nobel Prize for his study on antibiotics ?

(A) 1930

(B) 1945

(C) 1950

(D) 1962

46. *Saccharomyces carlsbergensis* is used to prepare :

(A) Cheese

(B) Beer

(C) Antibiotics

(D) Bread

47. Enthalpy, the heat content of the reacting system, is represented by :

(A) $H = U - PW$

(B) $H = U + PW$

(C) $H - U - PV$

(D) $H = U + PV$

48. According to first law of thermodynamics :

(A) Energy can be created but not destroyed

(B) Energy can be created and destroyed

(C) Energy can neither be created nor destroyed

(D) None of the above

49. Which of the following is true for pH ?

(A) $pH = -\log[H+]$

(B) $pH = \log \frac{1}{[H+]}$

(C) $pH = \log [H+]$

(D) Both (A) and (B)

50. Buffers are mixtures of :

(A) Weak acids and their conjugate bases

(B) Strong acids and their conjugate bases

(C) Weak alkaloids and their conjugate bases

(D) Strong alkaloids and their conjugate bases

51. The statement "*omnis cellula e cellula*" was proposed by :

(A) Robert Hooke

(B) Anton van Leeuwenhoek

(C) Rudolf Virchow

(D) Schleiden and Schwann

52. In which year, Jonathan Singer and Garth Nicolson proposed fluid-mosaic model of plasma membrane ?

(A) 1970

(B) 1972

(C) 1974

(D) 1976

53. Which of the following was earlier known as GERL (Golgi complex–ER–lysosome) ?

(A) *trans*-Golgi network

(B) *cis*-Golgi network

(C) Endoplasmic reticulum

(D) Lysosomes

54. The period between the end of mitosis phase and the start of DNA replication is called as :

(A) G1 phase

(B) G2 phase

(C) S phase

(D) None of the above

55. The *zona pellucida* of most mammalian eggs is composed mainly of :

(A) ZP1 glycoproteins

(B) ZP2 glycoproteins

(C) ZP3 glycoproteins

(D) All of the above

56. Which of the following is most appropriate for extra-embryonic membranes ?

(A) Amnion, chorion

(B) Yolk sac, allantois

(C) Amnion, chorion, yolk sac

(D) Amnion, chorion, yolk sac, allantois

57. Pollination in which the pollen from the anthers of one flower are transferred to the stigma of another flower borne on the same plant is termed as :

(A) Cleistogamy

(B) Homogamy

(C) Geitonogamy

(D) Xenogamy

58. The development of reproductive propagules without meiosis and syngamy is called as :

(A) Porogamy

(B) Mesogamy

(C) Apomixis

(D) Siphonogamy

59. In which plant, Frits Went discovered Auxin hormone ?

(A) *Avena sativa*

(B) *Triticum aestivum*

(C) *Brassica oleracea* var. *botrytis*

(D) *Solanum tuberosum*

60. The downward curvature of leaves that occurs when the upper (adaxial) side grows faster than the lower (abaxial) side is termed as :

(A) Thermonasty

(B) Epinasty

(C) Nyctinasty

(D) Thigmonasty