



**GSFC UNIVERSITY**

**SCHOOL OF SCIENCE**

**Admission Common Test for M.Sc. Biotechnology, 2023-24**

**Time: 60 Minutes**

**Total Marks: 60**

**Instructions:**

- i. All questions are compulsory.
  - ii. All questions are Multiple Choice Questions.
  - iii. Each question Carries 1 Mark.
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1. Air bubble in water behaves as
  - a. sometimes concave, sometimes convex lens
  - b. concave lens
  - c. convex lens
  - d. always refracting surface
2. The phenomenon that cannot take place in sound waves is
  - a. Reflection
  - b. Interference
  - c. Diffraction
  - d. Polarization
3. When A ball is thrown upward in a moving train does not come back into the thrower's hand.
  - a. True
  - b. False
4. Which of the following is true about the universe?
  - a. It's an open system
  - b. It's a closed system
  - c. It is an isolated system
  - d. It is an international system
5. Which are the charged species of an atom?



- a.  $H_2/Ni$  Electron only
  - b. Neutron only
  - c. Electron and proton
  - d. Proton and neutron
6. A coin is tossed five times in succession. What is the probability of getting at least four heads?
- a. 1-4
  - b. 3-4
  - c. 1-16
  - d. 3-16
7. The perimeter of triangle ABC is 6 times the arithmetic mean of sines of its angles, if  $a = 1$  then  $A =$  \_\_\_\_\_
- a.  $\pi/6$
  - b.  $\pi/3$
  - c.  $\pi/2$
  - d.  $\pi/5$
8. The maximum value of  $\sin x$  is
- a. 1
  - b. 0.8
  - c. 0
  - d. 0.6
9. What is the median of the sample 5, 5, 11, 9, 8, 5, 8?
- a. 5
  - b. 6
  - c. 8
  - d. 9
10. Differential Equation used widely in the fields of Economics, Ecology and Physics
- a. True
  - b. False
11. The exchange of gases in the alveoli of the lungs takes place by
- a. Active transport
  - b. Simple diffusion
  - c. Passive transport
  - d. None of the above
12. Colchicine is a cell poison which arrests cell division at



- a. Metaphase
  - b. Anaphase
  - c. Telophase
  - d. Prophase
13. Which phase occupies the maximum part of cell cycle?
- a. Mitotic phase
  - b. Meiotic phase
  - c. Cytokinesis
  - d. Interphase
14. The proteinaceous molecule that joins a non-protein prosthetic group to form a functional enzyme, is called
- a. Apoenzyme
  - b. co-factor
  - c. Holoenzyme
  - d. Isoenzyme
15. Which one of the following structures between two adjacent cells is an effective transport pathway?
- a. Plasmalemma
  - b. Plasmodesmata
  - c. Plastoquinones
  - d. Endoplasmic reticulum
16. Out of the following which one is an example of emulsion? methane
- a. Soap solution
  - b. Milk
  - c. Blood
  - d. Air
17. A metal present in insulin is
- a. Zinc
  - b. Copper
  - c. Iron
  - d. Aluminium



18. The ozone layer forms naturally by the interaction of
- CFC with oxygen
  - UV radiation with oxygen
  - IR radiation with oxygen
  - Oxygen and water vapour
19. Nucleic acids are the polymers of \_\_\_\_\_
- Nucleosides
  - Bases
  - Sugars
  - Nucleotides
20. The products of the fermentation of sugar are ethanol and
- Water
  - Carbon dioxide
  - Oxygen
  - Sulfuroxide
21. All viruses consists of
- RNA and protein coat
  - DNA and protein coat
  - a nucleic acid and a protein coat
  - Polysaccharides and proteins
22. Which of the following Process in which using natural bacteria in mining?
- Bioremediation
  - Bioleaching
  - Biodegradation
  - Genomics
23. Starvation proteins are produced by a culture during which of the following segments of the growth curve?
- Lag phase
  - Log phase
  - Stationary phase



- d. Death Phase
24. DNA replication is
- Conservative
  - Semiconservative
  - Non-conservative
  - Constitutive
25. Ribosomes are \_\_\_\_\_
- Cell organelle
  - Enzyme
  - Nucleotides
  - Nucleosides
26. The first transgenic crop was
- Cotton
  - Tobacco
  - Brinjal
  - Banana
27. A common biocontrol agent for the control of plant disease is
- Baculovirus
  - Bacillus thuringiensis*
  - Glomus*
  - Trichoderma*
28. Which of the following is not a variant of BLAST?
- BLASTN
  - BLASTP
  - BLASTX
  - TBLASTNX
29. Program used for 3-D structure visualization
- UPGMA
  - CLUSTAL
  - RasMol



- d. SWISS-PROT
30. Phylogenetic relationship can be shown by
- Dendrogram
  - Genebank
  - Data retrieving tool
  - Data search tool
31. Applications of bioinformatics include
- data storage and management
  - drug designing
  - understand relationships between organisms
  - all of the above
32. All are sequence alignment tools except
- BLAST
  - FASTA
  - RasMol
  - CLUSTAL W
33. In studying protein X-ray diffraction is used to
- concentrate the protein
  - determining the structure of protein
  - determine sedimentation coefficient
  - none of these
34. The full form of MALDI is
- Mass Assisted Laser Desorption Ionization
  - Matrix Assisted Laser Desorption Ionization
  - Mono Anionic Laser Desorption Ionization
  - None of these
35. DNA-dependent RNA polymerase catalyses transcription on one strand of the DNA which is called the
- Template strand
  - coding strand



- c. alpha strand
  - d. Antistrand
36. A complex of ribosomes attached to a single strand of RNA is known as
- a. Polypeptide
  - b. Okazaki fragment
  - c. Polysome
  - d. Polymer
37. Which of the following does not follow central dogma of molecular biology?
- a. Fungi
  - b. Algae
  - c. Animal cell
  - d. HIV
38. Crop engineered for glyphosate are resistant/tolarant to
- a. Insects
  - b. Herbicides
  - c. Fungi
  - d. Bacteria
39. Ethanol is commonly produced through a particular species of
- a. Saccharomyces
  - b. Clostridium
  - c. Trichoderma
  - d. Aspergillus
40. Which of the following is the exception of cell theory?
- a. Virus
  - b. Plant
  - c. Animal
  - d. Lichen
41. Melanin protects from
- a. UV rays
  - b. Visible rays



- c. Infrared rays
- d. X-rays
42. What is common between parrot, platypus and kangaroo?
- a. Toothless jaw
- b. Functional post-anal tail
- c. Ovoparity
- d. Homoiothermy
43. In mammals, histamines are secreted by
- a. Lymphocytes
- b. Mast cells
- c. Fibrioblasts
- d. Histiocytes
44. Probiotics are
- a. Cancer enhancing microbes
- b. New kind of food allergens
- c. Live microbial food supplements
- d. Safe antibiotics
45. Which of the following organisms begins marine food chain?
- a. Zooplankton
- b. Small fish
- c. Phytoplanktons
- d. Corals
46. In hybridization,  $Tt \times tt$  gives rise to the progeny of ratio
- a. 2:1
- b. 1:2:1
- c. 1:1
- d. 1:2
47. When a tall and red flowered individual is crossed with a dwarf and white flowered individual, phenotype in the progeny is dwarf and white. What will be genotype of tall and red flowered individual?
- a.  $TtRr$





- b. TTRR
  - c. TTRr
  - d. TtRR
48. Gene which suppresses other gene's activity but does not lie on the same locus is called as
- a. Supplementary
  - b. Epistasis
  - c. Hypostatic
  - d. Co-dominance
49. Law of independent assortment can be explained with the help of
- a. Dihybrid cross
  - b. Test cross
  - c. Backcross
  - d. Monohybrid cross
50. Barr body is missing in the female suffering from
- a. Hauntington's disease
  - b. Tay-sach's disease
  - c. Klinefelter's syndrome
  - d. Turner's syndrome
51. Wound healing in plants is initiated by
- a. Apical meristem
  - b. Lateral meristem
  - c. Secondary meristem
  - d. Intercalary meristem
52. Which of the following flowers only once in life time?
- a. Bamboo species
  - b. Mango
  - c. Papaya
  - d. Jackfruit
53. Which one of the following fruit is parthenocarpic



- a. Jackfruit
  - b. Banana
  - c. Brinjal
  - d. Apple
54. Transport of food materials in higher plants occurs through
- a. Sieve elements
  - b. Xylem
  - c. Trachieds
  - d. Companinon cells
55. The waxy substance associated with the wall of the cork cell is
- a. Lignin
  - b. Hemicellulose
  - c. Cutin
  - d. Suberin
56. Archaeobacteria differ from bacteria in
- a. lacking peptidoglycan in the cell wall
  - b. lacking membrane bound organelles
  - c. containing circular chromosome
  - d. containing formyl-methionine as an initiator amino acid
57. Which one of the following statements is INCORRECT with respect to bacterial conjugation?
- a. It facilitates transfer of genetic material
  - b. It requires flagellum
  - c. It can spread antibiotic resistance
  - d. It can transfer virulence factors
58. One of Koch's postulates states that the suspected causative organism should
- a. not grow in artificial media
  - b. get cleared by the host immune system
  - c. always be associated with other organisms and hence cannot be grown as pure culture
  - d. be grown in pure culture



59. In a simple microscope, \_\_\_\_\_
- a. a lens with negative power is used
  - b. the focal length of the lens is less than the least distance for clear vision
  - c. the focal length of the lens is greater than the least distance for clear vision
  - d. magnification depends only on the focal length of the lens
60. Halotolerant and halophilic organisms can be isolated from
- a. Sea
  - b. River
  - c. Pond
  - d. Lake

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SAMPLE QUESTION PAPER