

Seat
No.

PD-29

Total No. of Pages : 09

Shivaji University, Kolhapur
Ph.D. Entrance Examination, February- 2024
Biochemistry/Biotechnology
Sub. Code : 58805

Day and Date : Wednesday, 07-02-2024

Total Marks : 100

Time : 01:00 pm to 03:00 pm

Instructions:

- 1) All questions are compulsory.
 - 2) Each question carries 2 marks.
 - 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
 - 4) Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
 - 5) Follow the instructions given on OMR Sheet.
 - 6) Rough work shall be done on the sheet provided at the end of question paper.
 - 7) Only non programmable calculators are allowed.
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1. Which of the following is not publisher of scientific paper/journal
A) Elsevier
B) Springer
C) Scopus
D) Wiley
2. Which of the following is not a characteristic of Scientific method?
A) Objectivity
B) Verification
C) Speculation
D) Predictability
3. The following are the features of the good research student except
A) Should be replicable
B) Should be systematic and objective
C) Should be ethical and unbiased
D) Should be unethical and biased

4. A researcher is generally expected to
 - A) Study the existing literature in a field
 - B) Generate new principles, theories and validate
 - C) Synthesize the ideas given by others
 - D) Evaluate the findings of a study
5. A medical research which follows case study method is called
 - A) Clinical or diagnostic
 - B) Causal
 - C) Analytical
 - D) Qualitative
6. Bibliography means
 - A) Foot notes
 - B) Quotations
 - C) List of references and books
 - D) Biography
7. Use of data without acknowledging the original author while publishing our own data is called as
 - A) Acknowledgement
 - B) Foot note
 - C) Index
 - D) Plagiarism
8. Which of the following statements is correct?
 - A) Infrared radiation has a shorter wavelength than visible light.
 - B) Microwave radiation possesses more energy than infrared radiation.
 - C) Infrared radiation has a lower wavenumber than visible light.
 - D) Ultraviolet radiation has a longer wavelength than infrared radiation.

- [P.T.O...]

15. Which one of the following is an example of non-covalent interaction in protein?
 - A) Peptide bond
 - B) Disulphide bridge
 - C) Glycosidic bond
 - D) Phosphodiester bond
16. What is the preferred method for sterilization of air for fermentation?
 - A) UV sterilization
 - B) Steam sterilization
 - C) Filter sterilization
 - D) Autoclave
17. Linkage between the CPU and users is provided by
 - A) Peripheral devices
 - B) Storage
 - C) Control unit
 - D) Mouse
18. is the most commonly used graphic device to illustrate statistical distribution.
 - A) Histogram
 - B) Bar Diagram
 - C) Frequency Polygon
 - D) Line graph
19. The beta-oxidation of fatty acids occurs mainly in the.....
 - A) Absence of ATP
 - B) Cytosol
 - C) Cell membrane
 - D) Mitochondria
20. Among following method is used to predict tertiary structures of proteins?
 - A) Homology modeling
 - B) Chromatography
 - C) Edman degradation
 - D) Chou Fasman
21. BLAST stands for
 - A) Basic Local Alignment Search Tool
 - B) Basic local alignment sequence tool
 - C) Basic locally aligned similar tool
 - D) Basic lower alignment sequence tool

22. DNA fingerprinting is useful in crime detection is based upon
- A) Norther Blotting
 - B) Restriction fragment length polymorphism
 - C) DNA hybridization
 - D) Use of c DNA library
23. In mammals, the major fat in adipose tissues is
- A) Phospholipid
 - B) Cholesterol
 - C) Sphingolipids
 - D) Triacylglycerol
24. Growth hormone producing apical dominance is
- A) Auxins
 - B) Gibberllins
 - C) Ethylene
 - D) Cytokinin
25. Which of the following method is used to provide a secure cell stock to protect against accidental loss and genetic and phenotypic instability?
- A) Cryopreservation
 - B) Serial dilution
 - C) Storage in medium
 - D) Continuous culture.
26. Which of the following enzymes is used for detaching the grown cells for the culture vessel?
- A) Amylase
 - B) Pepsin
 - C) Trypsin
 - D) Chymotrypsin.
27. Local anaesthetic agents such as procaine bind to.....
- A) GABA A receptors
 - B) GABA B receptors
 - C) Voltage gated Sodium Channels
 - D) Nicotinic acetyl choline receptors

28. Third step in problem solving is
- A) Statement of the problem.
 - B) Understanding the nature of the problem
 - C) Survey the available literature
 - D) Discussion
29. How much NaOH will be required for preparing 100 ml 0.1 N NaOH solution
- A) 4 gm
 - B) 400 mg
 - C) 40 gm
 - D) 4 mg
30. Buffer is the mixture of
- A) Strong acid and strong base
 - B) Strong acid and weak base
 - C) Weak acid and its conjugate base
 - D) Weak base and its conjugate acid
31. Normal pH of the blood is
- A) 7.0
 - B) 7.2
 - C) 7.3
 - D) 7.4
32. $0.003 \times 0.02 = ?$
- A) 0.06
 - B) 0.006
 - C) 0.0006
 - D) 0.00006
33. Which of the following two angles are classified as complementary?
- A) 65° and 25°
 - B) 70° and 30°
 - C) 120° and 60°
 - D) 50° and 30°

34. λ_{max} is
- A) Maximum wavelength
 - B) Minimum wavelength
 - C) A particular wavelength at which sample gives maximum transmittance
 - D) A particular wavelength at which sample gives maximum absorbance
35. *Ri* plasmid is isolated from
- A) *Agrobacterium tumefaciens*
 - B) *Agrobacterium rhizogenes*
 - C) *Agrobacterium tinii*
 - D) *Thermus aquaticus*
36. Resolving power of a microscope depends upon
- A) The focal length and aperture of the eye lens.
 - B) The focal length and objective of the eye lens
 - C) The apertures of the objective and the eye lens
 - D) The wavelength of light illuminating the object
37. Which of the following are categories under declarative memory?
- A) Walking
 - B) Talking
 - C) Remembering words and their meanings
 - D) Puzzle solving
38. Early symptoms of Parkinson's disease are developed because of
- A) Deformities in DOPA related receptors
 - B) Deformities in Acetylcholine related receptors
 - C) Deformities in Cyclic AMP related receptors
 - D) Deformities in Glutamate related receptors

39. Blotting describes the of nucleic acids.
- A) Monitoring
 - B) Immobilization
 - C) Racing
 - D) Composition
40. r RNA is synthesized in
- A) Nucleus
 - B) Ribosomes
 - C) Nucleolus
 - D) Endoplasmic reticulum
41. Osazone test for carbohydrate is confirmatory test for
- A) Monosaccharides
 - B) Polysaccharides
 - C) Triacylglycerols
 - D) Amino acids
42. The rate limiting enzyme in the extra mitochondrial synthesis of fatty acids is
- A) Condensing enzyme
 - B) Acetyl CoA carboxylase
 - C) Hydratase
 - D) Acyl transferase
43. Which of the following is not the plant tissue culture growth medium
- A) MS medium
 - B) Nish medium
 - C) B5 medium
 - D) DMEM medium
44. Name the type of culture which is prepared by inoculating directly from the tissue of an organism to culture media?
- A) Primary cell culture
 - B) Secondary cell culture
 - C) Cell lines
 - D) Transformed cell culture

45. Insertion of DNA fragments at the Hind III site in the plasmid pBR322 inactivates the gene. This is called as
- A) Metabolic inactivation
 - B) Antibiotic mediated inactivation
 - C) Insertional inactivation
 - D) Gene inactivation
46. In lactic acid fermentation, the final electron acceptor is
- A) Lactic acid
 - B) Pyruvate
 - C) Oxygen
 - D) NAD
47. In fermentation industry the Downstream process is required for
- A) Preparation of seed culture
 - B) Maintenance of pH
 - C) Agitation during fermentation process
 - D) Recovery of the product
48. The class of the antibody produces in the largest amount every day is
- A) IgM
 - B) IgG
 - C) IgA
 - D) IgE
49. Which tool is utilized for motif identification?
- A) BLAST
 - B) COPIA
 - C) PROSPECT
 - D) Pattern hunter
50. Which number is wrong in the series 2, 6, 15, 31, 56, 93?
- A) 6
 - B) 31
 - C) 56
 - D) 93

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