

Total No. of Printed Pages: 06

No. of Questions : 50

**Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar**  
**PET 2024 (9006) Doctor of Philosophy (Biochemistry)**

(To be filled by the Candidate)

Candidate Seat Number  
(As per Admit card)

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OMR Sheet Number

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Invigilator's signature with Date

Candidate's Seat No. in Words : \_\_\_\_\_

Name of the Center : \_\_\_\_\_

Paper Code &amp; Name of Examination : 9006 - Doctor of Philosophy (Biochemistry)

Date: 03/10/2024

PET 2024 - EXAMINATION

Time: One Hours

Total Marks: 100

**Important Instructions for the candidate**

- Write your seat number and OMR Sheet number on the question paper in the earmarked space
- This question paper carries Fifty (50) Multiple-choice type questions and each question carries 2 Marks
- At the commencement of examination, the question paper will be given to the student.
- Each question has four alternative responses marked (A) (B) (C) and (D). You have to darken the circle as indicated below on the correct response against each question  
Example: where (C) is correct answer

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- Your responses to the answer are to be indicated in the OMR Sheet. If you mark at any place other than in the circle in the OMR Sheet it will not be evaluated.
- Rough work is to be done at the end of this question paper.
- You have to return OMR answer sheet and question paper to the invigilator at the end of examination compulsorily and must not carry with you outside the examination hall.
- Use only Black / Blue ball point pen
- Use of any type of calculator or log table etc. is prohibited.
- There is no negative marking for incorrect answers

**विद्यार्थ्यांसाठी महत्त्वाच्या सूचना**

- परीक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात तसेच आपणास दिलेल्या उत्तर पत्रिकेचा क्रमांक त्याखाली लिहावा.
- या प्रश्नपत्रिकेतील सर्व प्रश्न सोडवणे अनिवार्य आहे.
- परीक्षा सुरु झाल्यावर विद्यार्थ्यांला प्रश्नपत्रिका दिली जाईल.
- प्रत्येक प्रश्नासाठी (A) (B) (C) (D) अशी चार विकल्प उत्तरे दिली आहेत, त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा निळा करावा.  
उदा: जर (C) हे उत्तर योग्य असेल तर

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- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे ओएमआर उत्तर पत्रिकेतच दर्शवावीत इतर ठिकाणी लिहिलेली उत्तरे तपासली जाणार नाहीत.
- प्रश्नपत्रिकाच्या शेवटी कोऱ्या जागेवरच कच्चे काम करावे
- परीक्षा संपल्यानंतर विद्यार्थ्यांनी मूळ ओ. एम. आर उत्तरपत्रिका पर्यवेक्षकाकडे परत करणे आवश्यक आहे तथापि प्रश्नपत्रिका व ओ. एम. आर. उत्तरपत्रिका आपल्याबरोबर नेण्यास विद्यार्थ्यांला परवानगी नाही.
- फक्त काळ्या किंवा निळ्या बॉलपेनचाच वापर करावा
- कॅल्क्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही
- चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही

- | Q. No. | Question   |
|--------|--|
| 1.     | Taq DNA Pol is used in -----<br>(A) DNA fingerprinting<br>(C) PCR<br>(B) RFLC<br>(D) Both A and B                                    |
| 2.     | B cells are fuse with ----- cell for generating monoclonal antibodies.<br>(A) Lung<br>(C) T cell<br>(B) Myeloma<br>(D) Udder         |
| 3.     | RFLP is used in -----<br>(A) Paternity test<br>(C) Forensic<br>(B) Genome mapping<br>(D) All of this                                 |
| 4.     | Unorganised mass of plant cell is -----<br>(A) Microproagation<br>(C) Protoplast<br>(B) Callus<br>(D) Tissue                         |
| 5.     | Transposons carry genes such as resistant to ----- factor.<br>(A) Antibacterial<br>(C) Symbiotic<br>(B) Virulence<br>(D) All of this |
| 6.     | Agrobacterium tumefaciens is a -----<br>(A) Gram -ve bacteria<br>(C) Actinomycets<br>(B) Gram +ve bacteria<br>(D) Fungi              |
| 7.     | ----- are used for integrating foreign gene for cloning.<br>(A) Vector<br>(C) Proteins<br>(B) RNA<br>(D) Both B and C                |
| 8.     | A radiolabeled molecule of nucleic acid is -----<br>(A) Vector<br>(C) Selectable marker<br>(B) Gene<br>(D) Plasmid                   |
| 9.     | Phagemid are the combination of -----<br>(A) Plasmid<br>(C) Phage lambda<br>(B) Cosmid<br>(D) Both A and C                           |
| 10.    | ----- cycle is completed by phage quickly.<br>(A) Assembly<br>(C) Lysogenic<br>(B) Lytic<br>(D) Both B and C                         |
| 11.    | DNA ----- used to join two DNA fragments.<br>(A) Polymerase<br>(C) Ligase<br>(B) Helicase<br>(D) Both A and B                        |

12. ----- is the starting material for c-DNA library.  
 (A) DNA (B) Genomic DNA  
 (C) m-RNA (D) Plasmid DNA
13. The first genomic libraries were cloned in -----  
 (A) Fungi (B) Bacteria  
 (C) Bacterial Plasmids (D) Both A and B
14. What is copy number?  
 (A) Number of RNA (B) Number of DNA  
 (C) Number of Plasmid present in bacterial cell (D) Both A and B
15. With the help of ----- DNA can be cut at specific site.  
 (A) Ligase (B) Polymerase  
 (C) Helicase (D) Restriction enzymes
16. Blue White screening is used for identification of -----  
 (A) Mutation (B) Replication  
 (C) Transformation (D) Both A and B
17. *A. tumefaciens* cause ----- disease.  
 (A) Lalya (B) Bacterial blight  
 (C) Crown gall (D) Hairy root
18. *A. rhizogenes* cause ----- disease.  
 (A) Lalya (B) Bacterial blight  
 (C) Crown gall (D) Hairy root
19. Ti plasmid found in -----  
 (A) *A. niger* (B) *A. tumefaciens*  
 (C) *A. flavus* (D) All of the above
20. Ri plasmid found in -----  
 (A) *A. niger* (B) *A. tumefaciens*  
 (C) *A. flavus* (D) *A. rhizogenes*
21. T-DNA region contains genes for synthesis of ----- synthesis.  
 (A) Auxin (B) Cytokinins  
 (C) Opines (D) All of the above
22. Uncatalyzed reaction shows \_\_\_\_\_ activation energy.  
 (A) Lower (B) Higher  
 (C) Moderate (D) Optimum
23. Alcoholic fermentation is carried by -----  
 (A) *S. cerevisiae*. (B) *E. coli*  
 (C) Plants (D) All of this

24. ----- hormones are required for callus differentiation.  
 (A) Auxin (B) Ethylene  
 (C) Cytokinin (D) Both A and C
25. ----- is secreted by corpus luteum.  
 (A) Estrogen (B) Progesteron  
 (C) LH (D) FSH
26. Which of the following is not a feature of carrier gas used in gas chromatography?  
 (A) It must be chemically inert  
 (B) It should be suitable for the detector employed  
 (C) It should not be completely pure  
 (D) It should be cheap
27. Which of the following organ does influenza virus infects?  
 (A) Heart (B) Liver  
 (C) Respiratory System (D) Kidney
28. Syringe pumps used in High pressure liquid chromatography are most suitable for which of the following columns?  
 (A) Capillary columns (B) Guard columns  
 (C) Short-fast columns (D) Small bore columns
29. Which of the following is screening test for HIV/AIDS  
 (A) Western blot test (B) ELISA test  
 (C) Both A and B (D) VDRL test
30. In thin layer chromatography, the stationary phase is made of ..... and the mobile phase is made of.....  
 (A) Solid, Liquid (B) Liquid, Liquid  
 (C) Liquid, gas (D) Solid, gas
31. The binder used in the preparation of TLC plates is  
 (A) Mannitol (B) Calcium sulfate  
 (C) Dextrose (D) PVP
32. .... is used for both qualitative and quantitative analysis  
 (A) Molecular spectroscopy (B) Vibrational Spectroscopy  
 (C) Mass spectroscopy (D) Infra-red Spectroscopy
33. The portion of the growth curve where rapid growth of bacteria is observed is known as  
 (A) Stationary phase (B) Decline phase  
 (C) Lag phase (D) Log phase
34. Determining the structures of folding intermediates analysis by?  
 (A) ESR spectroscopy (B) Mass spectrometry  
 (C) NMR spectroscopy (D) IR spectrometry

35. Sedimentation principle is involved in  
 (A) Chromatography (B) Crystallization  
 (C) Centrifugation (D) Sublimation
36. Which of the following is not used in centrifugation?  
 (A) Electromagnetic force (B) Centrifugal force  
 (C) Gravitational force (D) Centripetal force
37. ----- technique separates charged particles using an electric field.  
 (A) Electrophoresis (B) Hydrolysis  
 (C) PCR (D) RDT
38. Hydroxylation of proline and lysine in collagen molecule requires following vitamin  
 (A) Vitamin E (B) Vitamin C  
 (C) Vitamin K (D) Vitamin D
39. The enzyme which hydrolyses starch to maltose is -----  
 (A) Protease (B)  $\alpha$ -Amylase  
 (C) Lactase (D) Maltase
40. Blocking of enzyme action by blocking its active site is called -----  
 (A) Allosteric inhibition (B) Feedback inhibition  
 (C) Competitive inhibition (D) Non-competitive inhibition
41. The end product of Glycolysis under anaerobic conditions is  
 (A) Pyruvic acid (B) Acetoacetic acid  
 (C) Lactic acid (D) Oxaloacetic acid
42. Which of the following enzyme catalyzes the oxidation-reduction reaction?  
 (A) Transaminase (B) Glutamine synthetase  
 (C) Phosphofructokinase (D) Oxidoreductase
43. Which of the following is produced with the combination of apoenzyme and coenzyme  
 (A) Holoenzyme (B) Enzyme substrate complex  
 (C) Prosthetic group (D) Enzyme product complex
44. The derivation of pH as a measure of acidity?  
 (A) Henderson–equation (B) Henderson–Hasselbalch equation  
 (C) Hasselbalch equation (D) None of these
45. Which of the following detection methods is not commonly used to detect isotopically labelled drug metabolites?  
 (A) Infrared spectroscopy  
 (B) Nuclear magnetic resonance spectroscopy  
 (C) Scintillation counting  
 (D) Mass spectrometry

46. Results from an excess of neutrons?  
 (A) "Positron decay" (B) "Negatron decay"  
 (C) "Positron decay" and "negatron" decay (D) Some radioactive nuclides
47. Widely used for gamma sterilization  
 (A) Krypton-85 (B) Chlorine  
 (C) Ytterbium-169 (D) Cobalt-60
48. What is the fate of fatty acid entering into the cells  
 (A) Fatty acid diffuses into mitochondria for beta-oxidation  
 (B) Fatty acid is converted into fatty acyl CoA (activated form)  
 (C) Fatty acid is bound to albumin in the cytosol  
 (D) None of the Above
49. Decays or emits excess energy or radiation  
 (A) Radioactive isotopes (B) Radioactive isobar  
 (C) Radioactive isoton (D) Radioactive species
50. Most of the metabolic pathways are either anabolic or catabolic. Which of the following pathways is considered as "amphibolic" in nature?  
 (A) Glycogenesis (B) Glycolytic pathway  
 (C) Lipolysis (D) Citric acid cycle

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