

W-123**Ph.D. Entrance Examination, 2024****MICROBIOLOGY****Maximum Marks : 50****Note :** Each question carrying 2 marks.

- Q. 1.** In a fair six side die, what is probability of rolling an even number :
- (a) 1/3
 - (b) 1/2
 - (c) 1/6
 - (d) 2/3
- Q. 2.** In Gel filtration chromatography, what property of molecule is utilized for their separation :
- (a) Charge
 - (b) Solubility
 - (c) Size
 - (d) None

- Q. 3.** Which of the following disease is caused by prions ?
- (a) Tuberculosis
 - (b) Creutzfeldt-Jacob disease
 - (c) Cholera
 - (d) Malaria
- Q. 4.** Which type of culture media is specifically used to grow only certain types of bacteria while inhibiting others ?
- (a) Minimal media
 - (b) Selective media
 - (c) Enriched media
 - (d) Differential media
- Q. 5.** A sample of IgG protein treated with β -mercaptoethanol was separated on SDS-PAGE. How many CBB protein bands do you expect in the Gel ?
- (a) 2
 - (b) 3
 - (c) 4
 - (d) 10

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- Q. 6.** Which of the following ETC complex has cytochrome a_3 :
- (a) Complex-I
 - (b) Complex-II
 - (c) Complex-III
 - (d) Complex-IV
- Q. 7.** $\text{HCO}_3^-/\text{Cl}^-$ exchanger on RBC membrane is an example of :
- (a) Uniport
 - (b) Symport
 - (c) Antiport
 - (d) Pump
- Q. 8.** MHC class I loaded antigen presented to ?
- (a) B-Cell
 - (b) CD^{4+} T-Cells
 - (c) CD^{8+} T-Cells
 - (d) T_H -Cell
- Q. 9.** Which type of hypersensitivity reactions involve IgE :
- (a) I

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- (b) II
 - (c) IV
 - (d) III
- Q. 10.** Which of the following factor prevents premature binding of 30S and 50S ribosomal subunits :
- (a) IF1
 - (b) IF2
 - (c) IF3
 - (d) EF-Tu
- Q. 11.** Shine-Dalgarno sequence complementary base sequence present on :
- (a) mRNA
 - (b) 23S rRNA
 - (c) 5S rRNA
 - (d) 16S rRNA
- Q. 12.** Gold coating of sample is essential for the microscopy :
- (a) SEM
 - (b) TEM
 - (c) Phase contrast
 - (d) Fluorescence microscope

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- Q. 13.** Three glucose transporters having K_m 5 mM(P), 25 mM(Q) and 60 mM(R). Which of the above transporters get saturated if blood glucose concentration is 27 mM :
- (a) P and Q
 - (b) Q only
 - (c) R only
 - (d) P and R
- Q. 14.** Type of restriction enzyme most frequently used in Genetic Engineering :
- (a) Type I
 - (b) Type II
 - (c) Type III
 - (d) Type IV
- Q. 15.** Which of the following wavelength of light give highest resolution in a light microscope :
- (a) 700 nm
 - (b) 450 nm
 - (c) 600 nm
 - (d) 500 nm

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- Q. 16.** Number of aminoacids present in 10 pitch of a peptide :
- (a) 68
 - (b) 40
 - (c) 34
 - (d) 52
- Q. 17.** Which of the following bacteria spp. NOT used in aerated activated sludge process ?
- (a) Clostridium
 - (b) Nitrobacter
 - (c) Bacillus
 - (d) Nitrosomonas
- Q. 18.** Glycosidic bond present in Amylopectin :
- (a) α (1–4) only
 - (b) α (1–6) only
 - (c) α (1–4) and β (1–6)
 - (d) α (1–4) and α (1–6)
- Q. 19.** Alkaline phosphatase is commonly used in cloning to prevent which of the following process :
- (a) Plasmid degradation
 - (b) DNA amplification
 - (c) DNA sequence errors
 - (d) Self ligation of linearized vector

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- Q. 20.** Syphilis causative agent is :
- (a) N. gonorrhoeae
 - (b) C. trachomatis
 - (c) S. aureus
 - (d) T. pallidum
- Q. 21.** In the oxidative phase of the pentose phosphate pathway, which molecule is reduced to generate NADPH ?
- (a) Ribulose-5-(P)
 - (b) 6-phosphogluconolactone
 - (c) Glucose-6-P
 - (d) 6-phosphogluconate
- Q. 22.** A DNA fragment was treated with EcoRI produces three fragment of the DNA size 50 bp (X), 310 bp (Y) and 210 bp (Z) in Agarose Gel after Gel-electrophoresis. Arrange according to position from negative terminal to positive in the Gel :
- (a) XYZ
 - (b) YZX
 - (c) ZXY
 - (d) YXZ

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- Q. 23.** In yeast fermentation, the enzyme pyruvate decarboxylase converts pyruvate into which intermediate :
- (a) Lactic acid
 - (b) Ethanol
 - (c) Glucose
 - (d) Acetaldehyde
- Q. 24.** Which of the following blotting technique used for DNA :
- (a) Eastern Blotting
 - (b) Northern Blotting
 - (c) Western Blotting
 - (d) Southern Blotting
- Q. 25.** Which of the following is correct for Biopesticide :
- (a) Environment friendly
 - (b) Target specificity
 - (c) Pest are less likely to develop resistance to biopesticide as compared to synthetic pesticide
 - (d) All the above
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