



॥वसुधैव कुटुम्बकम्॥

SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)

(Established under section 3 of the UGC Act 1956)

Re - accredited by NAAC with 'A' Grade (3.58/4) | Awarded Category- I by UGC

Founder: Prof. Dr. S. B. Mujumdar, M.Sc., Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)

Faculty of Health Sciences (FOHS)

Sample questions for PhD Entrance Test (PET)

◆ BIOTECHNOLOGY

1. To keep blood PH at 7.4 the $\text{HCO}_3:\text{H}_2\text{CO}_3$ ratio should be:
 - a) 20:1
 - b) 30:1
 - c) 15:1
 - d) 1:1
2. Cell membrane consists of :
 - a) Lipids and proteins
 - b) Lipids only
 - c) Protein only
 - d) None of the above
3. If the genes coding for different traits are present close to each other on the same chromosome, then which one of the Mendel's laws will get affected?
 - a) Law of dominance
 - b) Law of segregation
 - c) Law of independent assortment
 - d) None of the above
4. Which subunit of the prokaryotic DNA polymerase III is involved in increasing its processivity?
 - a) Alpha
 - b) Beta
 - c) Epsilon
 - d) Delta
5. Which RNA type is typically transcribed by RNA polymerase I?



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- a) mRNA
 - b) tRNA
 - c) rRNA
 - d) miRNA
6. Which one of the following is **not** a subunit of ribosomes in mammals?
- a) 5S
 - b) 6S
 - c) 18S
 - d) 28S
7. Which type of radiation from the Sun is absorbed by the ozone layer?
- a) UVA
 - b) UVC
 - c) X-rays
 - d) Gamma rays
8. was the first genome to get sequenced
- a) MS2
 - b) PhiX174
 - c) E coli
 - d) Bacillus subtilis
9. Which one of the following is **not** a method for protein expression analysis
- a) SILAC
 - b) SAGE
 - c) ICAT
 - d) iTRAQ
10. Which one of the following is a protein structure database
- a) GEO



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- b) Genbank
 - c) PDB
 - d) SwissProt
11. A monoclonal antibody
- a) can bind to different antigens
 - b) can bind to one specific antigen
 - c) consists of two heavy chains and no light chain
 - d) consists of two light chains and no heavy chain
12. A helper T cell gets activated when
- a) it binds to a soluble antigen
 - b) it binds to an antigen presented on MHC-I molecule
 - c) it binds to an antigen presented on MHC-II molecule
 - d) it encounters a pathogen
13. Adaptive immune response is characterized by
- a) Memory response
 - b) Antigen specific response
 - c) Clonal expansion
 - d) All of the above
14. Which of the following helps in net biosynthesis of sugars from fatty acids?
- a) Anaplerotic reactions
 - b) Glyoxylate cycle
 - c) Pentose phosphate pathway
 - d) Glycogenolysis
15. Leloir pathway is important for catabolism which monosaccharide?
- a) Glucose
 - b) Galactose



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- c) Sucrose
 - d) Cellobiose
16. Sugars that differ in configuration at only one of the multiple chiral carbons are called
- a) Anomers
 - b) Rotamers
 - c) Epimers
 - d) Metamers
17. Enzyme accelerate rate of the reaction by
- a) Altering free energies of the substrates and products
 - b) Increasing the equilibrium constant
 - c) Decreasing the activation energy
 - d) Reducing optimum temperature of the reaction
18. α -Amylase activity can be best detected using
- a) DNSA reagent
 - b) Biuret method
 - c) BCA method
 - d) Salkowski test