Faculty of Health Sciences (FOHS)

Sample questions for PhD Entrance Test (PET)

◆ BIOTECHNOLOGY

1. To keep blood PH at 7.4 the HCO3:H2CO3 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?
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
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
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