

**GOA UNIVERSITY**  
M.Phil / Ph.D. Entrance Test

Sample Questions for Paper II

**DEPT. OF BOTANY**

**Section I: Marking Scheme: 1 mark for each question.**

1. Medullated Protostele is
  - (a) Actinostele
  - (b) Siphonostele
  - (c) Plectostele
  - (d) Mixed Protostele
  
2. Fruit ripening of climacteric fruit is influenced by
  - (a) Auxins
  - (b) Cytokinins
  - (c) Ethylene
  - (d) None of the above
  
3. Michaelis constant "Km" refers to
  - (a) Velocity of enzyme reaction
  - (b) Specificity of substrate to enzyme
  - (c) Plot between velocity and substrate concentration
  - (d) All of the above
  
4. Which hormone is known as seed germination hormone?
  - (a) IAA
  - (b) GA<sub>3</sub>
  - (c) ABA
  - (d) C<sub>2</sub>H<sub>4</sub>
  
5. A hybridization cross which considers the inheritance of two traits, each of which is specified by a different pair of genes on different chromosomes, is called a
  - (a) Monohybrid ratio
  - (b) Dihybrid ratio
  - (c) Trihybrid ratio
  - (d) Reciprocal cross
  
6. The highest number of chromosomes is in
  - (a) Equisetum
  - (b) Chara
  - (c) Riccia
  - (d) Ophioglossum
  
7. The independent evolution of a similar characteristic in two different species, not derived from a recent, common ancestor is referred to as
  - (a) Microevolution
  - (b) Divergent evolution
  - (c) Convergent evolution
  - (d) Macroevolution
  
8. The enzyme reverse transcriptase is found only in
  - (a) DNA viruses
  - (b) TMV
  - (c) Retroviruses
  - (d) Bacteriophages
  
9. M13 single strand plasmid play an important role in
  - (a) Site directed mutagenesis
  - (b) DAN sequencing
  - (c) Construction of cDNA/genomic library
  - (d) All of the above

10. Down's syndrome is a developmental disorder caused by
- (a) An additional copy of chromosome 21
  - (b) A missing X chromosome
  - (c) Nondisjunction
  - (d) Balanced translocation

**Section B: Marking Scheme: 5 marks each.**

1. Explain the process and use of solid state fermentation.
2. Draw a well labeled diagram of double helix DNA.
3. Give a broad outline of Bentham and Hooker's classification of angiosperms.
4. Draw a well labeled diagram of cell membrane.