

**Avinashilingam Institute for Home Science and Higher Education for Women  
(Deemed to be University) Coimbatore-641043.**

**Master's Degree Examination - November 2018  
III Semester**

**Class :II PG  
Major :Botany**

**Time: 3 hours  
Max. Marks: 60**

**17MBOC13 Cell and Molecular Biology**

**Part A 10 x 1/2 = 5  
Choose the correct answer**

1. Middle lamella is rich in \_\_\_\_\_  
a. Protein      b. Cellulose      c. Hemicellulose      d. Starch
2. Cell wall was first discovered by  
a. Mendel      b. Morgan      c. Robert Hooke      d. Barbara McClintock
3. Which one of the following pigment is predominant in chloroplast?  
a. Chlorophyll *b*      b. Chlorophyll *a*      c. Carotenoid      d. Xanthophyll
4. The nucleus was discovered by \_\_\_\_\_.  
a. Robert Downey      b. Robert Brown      c. Robert Koch      d. Morgan
5. Chromosomes which have the centromere at the very end is called as \_\_\_\_\_.  
a. Metacentric      b. Acrocentric      c. Acentric      d. Telocentric
6. Amitotic cell division is found in \_\_\_\_\_.  
a. Bacteria      b. Pollen      c. Yeast      d. Animal cell
7. Most abundant type of RNA in the cell is \_\_\_\_\_.  
a. mRNA      b. rRNA      c. tRNA      d. hnRNA
8. DNA replication occurs during \_\_\_\_\_ of cell cycle.  
a. G1-phase      b. G2-phase      c. S-phase      d. M-phase
9. RNA editing mechanism was first reported in \_\_\_\_\_.  
a. Chloroplast genome      b. Nuclear genome  
c. Bacterial genome      d. Mitochondrial genome
10. Which one of the following is an catalytic RNA?  
a. Lysozyme      b. Ribozyme      c. Ribosome      d. mRNA

**Part B**

**5 x 4 = 20**

**Answer ALL questions**

**Each answer should not exceed 200 words or one page**

- 11.a. With diagram, describe Fluid Mosaic model of plasma membrane.  
(Or)
- 11.b. Give an account of the structure of secondary cell wall.
- 12.a. Compare and contrast Chloroplast and Chromoplast.  
(Or)
- 12.b. Write briefly the Glyoxylate cycle.
- 13.a. Comment on gene families.  
(Or)
- 13.b. Write the salient features of lambrush chromosome.
- 14.a. Comment on DNA replication in *E.coli*.  
(Or)
- 14.b. Describe the semiconservative mode of DNA replication.
- 15.a. Give brief note on regulation of mRNA at translational level.  
(Or)
- 15.b. Write the role of activator repressor proteins and ribozymes.

**Part C**

**5 x 7 = 35**

**Answer ALL questions**

**Each answer should not exceed 600 words or three pages**

- 16.a. Explain the functions of cell wall.  
(Or)
- 16.b. Describe the functions of plasma membrane.
- 17.a. Write an account of the structure and functions of mitochondria.  
(Or)
- 17.b. With suitable diagrams, explain protein synthesis.
- 18.a. Describe in detail meiotic cell division. Add short note on significance of meiosis.  
(Or)
- 18.b. Discuss the mechanism of transposition. Write the evolutionary significance of Transposable elements.
- 19.a. Elaborate in detail the Watson and Crick model of DNA structure.  
(Or)
- 19.b. Mention the structure and function of tRNA.
- 20.a. Give an account of RNA splicing mechanism.  
(Or)
- 20.b. Describe in detail, the RNA editing mechanism.