

**Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore - 641 043.**

**Master's Degree Examination - November, 2017
III - Semester**

**Class: II PG
Major: Botany**

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

**12MBOC14 - Cell and Molecular Biology
Part - A**

10 × ½ = 5

Choose the correct answer

1. Plant cell wall is made up of
a) Cellulose, hemicelluloses and pectin b) Cellulose and chitin
c) Cellulose, hemicelluloses and chitin d) Cellulose only
2. The plasma membrane is impermeable to all molecules except
a) Glucose b) ATP c) Urea d) K⁺
3. Nucleus are absent in the biological body
a) Red blood cells b) White blood cells c) Animal cell d) Plant cell
4. Golgi complex was first recognized in the part
a) Eye b) Nerve cells c) Kidney d) Liver
5. The term 'chromatin' was coined by
a) W. Flemming b) W. Roux c) E. Strasburger d) Boveri
6. The haploid set of the chromosomes is called as
a) Proteome b) Genomics c) Genome d) Genes
7. Which one of the following enzymes are used to join bits of DNA?
a) DNA ligase b) DNA polymerase c) Primase d) Endonuclease
8. The mode of DNA replication in *E. coli* is
a) Conservative and unidirectional b) Semiconservative and unidirectional
c) Conservative and bidirectional d) Semiconservative and bidirectional
9. Which one of the following types of RNA participate in RNA processing?
a) t-RNA b) r-RNA c) Small nuclear RNA (snRNA) d) d-RNA
10. The largest class of introns which are found in nuclear mRNA primary transcript is
a) Spliceosomal introns b) Group I introns
c) Group II introns d) Group IV introns

Part – B

5x4=20

Answer ALL questions

Answer should not exceed 200 words to one page

11. a) Explain the structure of plant cell wall with diagram.
(or)
11.b) Briefly explain the chemical composition of plasma membrane.
12.a) Describe the structure of plant nucleus with diagram.
(or)
12.b) Give a concise account on functions of mitochondria.
13.a) Enumerate the Interrupted genes.
(or)
13.b) Write short notes on gene families.
14.a) Define conservative DNA replication?
(or)
14.b) Briefly explain the replication fork.
15. a) Explain the RNA editing.
(or)
15. b) Give a concise account on pan editing.

Part – C

5x7=35

Answer ALL questions

Answer should not exceed 600 words to three pages

16. a) Write an essay on primary and secondary plant cell wall with diagram.
(or)
16.b) Give a detailed account on enzymatic composition and function of plasma membrane.
17.a) Describe the structure and functions of endoplasmic reticulum.
(or)
17.b) Enumerate the structure and functions of golgi bodies.
18.a) Explain the method of mitosis cell division and its significance.
(or)
18.b) Narrate the method of meiosis cell division and its significance.
19.a) Write an essay on models of DNA replication.
(or)
19.b) Give a detailed account on method of DNA replication in *E.coli*.
20.a) Explain the RNA processing.
(or)
20. b) Enumerate the RNA splicing
