

**M. SC. (BIOTECHNOLOGY) SEM-I (2012  
COURSE)(CHOICE BASED CREDIT SYSTEM) : SUMMER  
2018  
SUBJECT : CELL BIOLOGY**

Day : **Tuesday**  
Date : **10/04/2018**

**S-2018-1081**

Time : **10.00 am to 01.00 pm**  
Max. Marks: 60.

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Both the sections should be written in **SEPARATE** answer books.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

**SECTION-I**

- Q.1** Attempt any **FIVE** of the following: **(10)**
- a) Enlist two second messengers.
  - b) Difference between desmosomes and hemidesmosomes.
  - c) Sketch and label late anaphase of mitosis.
  - d) Explain role of plasmodesmata in plants.
  - e) What is role of oil immersion in microscope?
  - f) Define gametogenesis.
- Q.2** Attempt any **TWO** of the following: **(10)**
- a) Describe the structure and functions of Mitochondria.
  - b) Describe the principle and working of phase contrast microscope.
  - c) Describe the structure and functions of intermediate filaments.
- Q.3** Attempt any **TWO** of the following: **(10)**
- a) What is ion channel? Explain in brief voltage gated channels and ligand gated channels.
  - b) Describe the structure of Fluid Mosaic model and explain how it is different from previous models.
  - c) Describe the mechanism and action of Na<sup>+</sup> and k<sup>+</sup> ATPases.

**SECTION-II**

- Q.4** Attempt any **FIVE** of the following: **(10)**
- a) Explain in brief cell theory.
  - b) Sketch and label typical plant cell.
  - c) What is role of F<sub>1</sub> particle of mitochondria?
  - d) What is mean by connexon?
  - e) Define apoptosis and necrosis.
  - f) Differentiate between chiasmata and centromere.
- Q.5** Attempt any **TWO** of the following: **(10)**
- a) Define cell cycle and explain in brief interphase of cell cycle.
  - b) Describe in brief prophase- I of meiosis.
  - c) What are cd kinase and P53? Explain their role in regulation of cell cycle.
- Q.6** Attempt any **TWO** of the following: **(10)**
- a) Explain mechanism of apoptosis and its failure leading to cancer development.
  - b) Explain different types of cell signaling molecules receptors and cell signaling transduction.
  - c) Discuss the role of protein tyrosine kinases in cell signaling.

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