

**M. SC. (BIOTECHNOLOGY) SEM-I (2012 COURSE)(CHOICE
BASED CREDIT SYSTEM) : WINTER - 2017
SUBJECT: CELL BIOLOGY**

Day: **Thursday**
Date: **09/11/2017**

Time: **02.00 PM TO 05.00 PM**
Max. Marks: 60

W-2017-0966

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Answers to the questions of Section I and Section II in **SEPARATE** answer books.
- 3) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** Attempt **ANY FIVE** of the following questions: **[10]**
- a) Enlist different types of leucocytes
 - b) Enlist two second messengers
 - c) Sketch and label patchtene of meiosis I
 - d) Write chemical composition of mitochondria
 - e) Name the organelles other than nucleus where genetic material is present
 - f) Explain in brief cell theory
- Q.2** Attempt **ANY TWO** of the following questions: **[10]**
- a) What are cytoskeleton? Describe structure and functions of microtubule
 - b) Describe the principle and working of phase contrast microscope
 - c) Describe ultrastructure of chloroplast and its role photosynthesis process
- Q.3** Attempt **ANY TWO** of the following questions: **[10]**
- a) Explain cell to cell interaction with reference to different cell junctions?
 - b) Explain structure of Fluid Mosaic Model and mention how it is differs from previous sandwich models
 - c) Describe ultrastructure of Mitochondria and add note on steps in cell respiration

SECTION-II

- Q.4** Attempt **ANY FIVE** of the following questions: **[10]**
- a) Explain 'S' phase in cell cycle
 - b) Sketch and label typical structure of plant cell
 - c) Define necrosis and apoptosis
 - d) What is connexon and connexin?
 - e) What is mean by caspases?
 - f) What is significance of meiosis?
- Q.5** Attempt **ANY TWO** of the following questions: **[10]**
- a) Define cell cycle. Explain the steps of regulation and mechanism in cell division process.
 - b) What is endocytosis and exocytosis? Explain the mechanism of receptor mediated endocytosis
 - c) Explain different check points of cell cycle and note on role of cdk and P53 in its regulation
- Q.6** Attempt **ANY TWO** of the following questions: **[10]**
- a) Describe STAT pathway used for signaling of cytokinesis
 - b) Explain different types of cell signaling molecules, receptors and signaling transduction
 - c) Explain mechanism of apoptosis and its failure leading to cancer development