

**M. Sc. (Biotechnology) Sem-I (2012 Course)(Choice Based Credit System) : WINTER - 2018**

**SUBJECT : CELL BIOLOGY**

Day : Wednesday  
Date : 24/10/2018

**W-2018-1205**

Time : 10.00 AM TO 01.00 PM  
Max. Marks : 60

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**N.B.:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Draw neat and labeled diagrams **WHEREVER** necessary.
  - 4) Answers to both the sections should be written in **SEPARATE** answer books.
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**SECTION – I**

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) What is mean by caspases?
  - b) Explain in brief 'S' phase of cell cycle.
  - c) What is role of  $F_1$  particle in mitochondria?
  - d) Name two second messengers.
  - e) Enlist cytoskeletal elements with their diameter.
  - f) Define refractive index and focal length.
- Q.2** Answer **ANY TWO** of the following: [10]
- a) Describe the ultrastructure and functions of chloroplast.
  - b) Differentiate between mitosis and meiosis.
  - c) Describe the principle and working of phase contrast microscope.
- Q.3** Answer **ANY TWO** of the following: [10]
- a) Explain in brief receptor mediated endocytosis.
  - b) Describe the role of ion channels in membrane transport.
  - c) Differentiate between active and passive transport.

**SECTION – II**

- Q.4** Attempt **ANY FIVE** of the following: [10]
- a) Explain in brief cell theory.
  - b) What is mean by ligand gated channel?
  - c) Differentiate between chiasmata and centromere.
  - d) Enlist different plastids with their functions.
  - e) What is significance of spermatogenesis?
  - f) Sketch and label metaphase of mitosis.
- Q.5** Answer **ANY TWO** of the following: [10]
- a) Describe in brief prophase – I of meiosis.
  - b) Describe in brief process of oogenesis.
  - c) Describe the structure and functions of endoplasmic reticulum.
- Q.6** Answer **ANY TWO** of the following: [10]
- a) Describe different types of cell signaling molecules and receptors.
  - b) Explain phosphatidylinositol pathway employed in signal transduction.
  - c) Explain extrinsic and intrinsic pathway of apoptosis.

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