

**M. Sc. (Biotechnology) Sem-I / M. Sc. (Medical Biotechnology) Sem- I**  
**(CBCS 2018 Course) : SUMMER - 2019**

**SUBJECT: CELL & DEVELOPMENTAL BIOLOGY**

**Day** : Friday  
**Date** : 05/04/2019

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

**S-2019-1424**

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Draw neat diagrams **WHEREVER** necessary.
- 4) Answer to both the sections should be written in ' **SAME** ' answer books.

**SECTION – I**

- Q.1** Attempt **ANY FIVE** of the following. (10)
- a) Give functions of lysosomes.
  - b) What is protofilament?
  - c) Enlist different types of cytoskeletal elements with their diameter.
  - d) Name the organelles where genetic material is present other than nucleus.
  - e) What is antiport and symport.
  - f) Define pinocytosis and phagocytosis.
  - g) Enlist components of cell membrane.
- Q.2** Attempt **ANY TWO** of the following. (10)
- a) Describe the structure of intermediate filament.
  - b) Describe the structure of mitochondria.
  - c) Describe role of ion channel in membrane transport.
- Q.3** Attempt **ANY TWO** of the following. (10)
- a) Discuss the salient features of fluid mosaic model.
  - b) Describe active transport with suitable example.
  - c) Describe the structure and functions of microtubules.

**SECTION - II**

- Q.4** Attempt **ANY FIVE** of the following. (10)
- a) What are desmosomes and hemidesmosomes?
  - b) Sketch and label metaphase of mitosis.
  - c) Define necrosis and apoptosis.
  - d) Explain in brief discoidal cleavage with suitable example.
  - e) What is blastocyst?
  - f) What are embryonic stem cells?
  - g) Explain in brief dedifferentiation?
- Q.5** Attempt **ANY TWO** of the following. (10)
- a) Write note on gap junctions and tight junctions.
  - b) Write note on different types of cell signaling molecules.
  - c) Describe structure of human egg.
- Q.6** Attempt **ANY TWO** of the following. (10)
- a) Explain in brief process of placenta formation in mammals.
  - b) Describe process of blastulation in frog.
  - c) What is second messenger? Explain the role played by cAMP in cell signaling.

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