

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

**SUBJECT: CELL & DEVELOPMENTAL BIOLOGY**

**Day** : Saturday  
**Date** : 27/10/2018

**W-2018-1222**

**Time:** 10.00 AM TO 12.00 Noon  
**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 diagrams **WHEREVER** necessary.
  - 4) Answer 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) Give functions of Golgi complex.
  - b) Enlist the functions of nucleolus.
  - c) Give the diameter of cytoskeletal elements.
  - d) Give the functions of erythrocytes and thrombocytes.
  - e) Explain in brief phagocytosis.
  - f) Define symport and antiport.
  - g) Explain in brief  $Ca^{++}$  ATPases.
- Q.2** Attempt **ANY TWO** of the following. **(10)**
- a) Describe the structure and functions of microfilament.
  - b) Describe the structure and functions of chloroplast.
  - c) Describe the fluid mosaic model of cell membrane structure.
- Q.3** Attempt **ANY TWO** of the following. **(10)**
- a) Explain different types of receptors and their significance in endocytosis.
  - b) Explain extracellular matrix.
  - c) Describe the structure and functions of Golgi complex.

**SECTION - II**

- Q.4** Attempt **ANY FIVE** of the following. **(10)**
- a) Define apoptosis and necrosis.
  - b) Sketch and label telophase in mitosis.
  - c) Give the significance of tight junction.
  - d) Define the term superficial cleavage with example.
  - e) Sketch and label blastocyst in mammals.
  - f) What are totipotent cells?
  - g) Explain in brief transdifferentiation
- Q.5** Attempt **ANY TWO** of the following. **(10)**
- a) Discuss the general principles of cell signaling.
  - b) Differentiate between mitosis and meiosis.
  - c) Describe egg types based on amount and distribution of yolk.
- Q.6** Attempt **ANY TWO** of the following. **(10)**
- a) Explain the process of spermatogenesis. Add a note on its significance.
  - b) Explain the process of implantation of human embryo.
  - c) Explain the intrinsic and extrinsic pathways in apoptosis.

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