

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc., Winter 2019-20 Examination**

**Semester: 1**  
**Subject Code: 11203107**  
**Subject Name: Cell and Developmental biology**

**Date: 25/11/2019**  
**Time: 10:30am to 1:00pm**  
**Total Marks: 60**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**  
 (a) Write brief note on transmission electron microscopy.  
 (b) Write brief note on fluorescence electron microscopy.
- Q.1. B) Answer the following questions (Any two) (04)**  
 (a) Short note/ Brief note (2x2) (04)  
 1. Write difference between endo and exocytosis.  
 2. Write brief note on phagocytosis.  
 (b) Short note on active transport mechanism. (04)  
 (c) Explain structure, composition and various models of cell membrane. (04)
- Q.2. A) Answer the following questions. (04)**  
 (a) Describe mitosis process in cell division. (04)  
 (b) Short note on photophosphorylation. (04)
- Q.2. B) Answer the following questions (Any two) (03)**  
 (a) Short note/ Multiple choice questions. (Each of 01 marks) (03)  
 1. Define Apoptosis.  
 2. Draw a labeled diagram of cell cycle.  
 3. Draw labeled structure of mitochondria.  
 (b) Functions of mitochondria. (03)  
 (c) Describe morphology of endoplasmic reticulum. (03)
- Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**  
 (a) Write detailed functions of Lysosome.  
 (b) Describe morphology and functions of Golgi apparatus.
- Q.3. B) Answer the following questions (Any two) (04)**  
 (a) Write a short note on cellular polarity and its deviations during development in certain cell types. (04)  
 (b) Exemplify the dominant planes and axes involved in gross body movements. (04)  
 (c) Which are the three distinct germ layers? Into which tissues and organs do they further differentiate? (04)
- Q.4. A) Answer the following questions. (04)**  
 (a) What are fibroblasts? In brief, mention its differentiation. (04)  
 (b) Discuss the various developmental stages of RBCs. (04)
- Q.4. B) Answer the following questions (Any two) (03)**  
 (a) Defining endosperm, write a note on three types of endosperm development. (03)  
 (b) Mention the potential uses of stem cells. (03)  
 (c) Give an overview of phloem differentiation from meristematic cells. (03)