

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc/IMSC., Winter 2018-19 Examination**

Semester: 1/7

Subject Code: 11201101

Subject Name: Principles of Cell Biology

Date: 01/12/2018

Time: 10:30am to 1:00 pm

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)** Explain the signal hypothesis of translocation of protein from cytoplasm to Endoplasmic reticulum lumen with the help of diagram. **(08)**
- Q.1. B) Answer the following questions (Any two)**
- (a) Describe ultrastructure of plasma membrane. **(04)**
  - (b) Explain structure of prokaryotic cell with the help of diagram. **(04)**
  - (c) What are Cdk-cyclin complexes? **(04)**
- Q.2. A) Answer the following questions.**
- (a) Describe the process of photosynthesis in CAM plants. **(04)**
  - (b) Compare the Carbon dioxide fixation in C-4 and C-3 plants. **(04)**
- Q.2. B) Answer the following questions (Any two)**
- (a) Multiple choice questions.(Each of 01 marks) **(03)****
1. "Species are groups of actually or potentially interbreeding natural populations that are reproductively isolated from other such groups." – is proposed from which concept?
    - a) Biological Species Concept
    - b) Genetic Species Concept
    - c) Evolutionary species Concept
    - d) Nominalistic Species concept
  2. The difference between ion channels and ionophores is the occurrence of which of the following?
    - a) Energy
    - b) Electric potential
    - c) Polarity
    - d) Electrochemical gradient
  3. Organelle which deals with formation and decomposition of hydrogen peroxide is called
    - a) Peroxisomes
    - b) Ribosomes
    - c) Endoplasmic reticulum
    - d) Lysosome
- (b) Differentiate between Exocytosis and Endocytosis. **(03)**
- (c) Write a brief note on "Ionophores"? **(03)**
- Q.3. A) Brief note (4x2) (Each of 04 marks) **(08)****
- (a) Describe the various functions of Rough Endoplasmic Reticulum?
  - (b) Differentiate between eukaryotic and prokaryotic ribosomes.
- Q.3. B) Answer the following questions (Any two)**
- (a) Brief note (Each of 02 marks) **(04)****
1. Biological Species Concept
  2. Natural Selection
- (b) Describe sequential evolution and divergent evolution. **(04)**

(c) Describe the theories of Abiogenesis. (04)

**Q.4. A) Answer the following questions.**

(a) Brief note (Each of 02 marks) (04)

1. Define: Evolution
2. Draw the structure of chlorophyll pigment.

(b) State any four differences between cyclic and non-cyclic photophosphorylation. (04)

**Q.4. B) Answer the following questions (Any two)**

(a) Multiple choice questions.(Each of 01 marks) (03)

1. The unit membrane model of plasma membrane was given by which of the following biologist?
  - a. Robertson
  - b. Danielli-Davson
  - c. Singer and Nicholson
  - d. Frye and Edidin
2. Which are also known as “Palade particles”?
  - a. Ribosomes
  - b. Lysosomes
  - c. Peroxisomes
  - d. Mitochondria
3. Development of spindle during mitotic cell division, is observed during which stage of cell division?
  - a. Early Prophase
  - b. Early Metaphase
  - c. Late Metaphase
  - d. End of Prophase

(b) What is “Autocrine signaling”? (03)

(c) Describe the functions of Lysosomes? (03)