

**PARUL UNIVERSITY**  
**PARUL INSTITUTE OF APPLIED SCIENCES**  
**MID SEMESTER INTERNAL EXAMINATION, October 2017**  
**M. Sc. Semester I**  
**Subject: BIOCHEMISTRY, BIOTECHNOLOGY AND MICROBIOLOGY**

**Paper Code: 11201101**

**Title of the paper: Principles of Cell Biology**

**Date: 4 /10 /2017**

**Time: 10:00-11:30AM**

**Maximum Marks: 40**

**Instructions:**

- 1. All questions are compulsory and options are given in first and second question only.**
  - 2. Numbers to the right of question indicate the marks of respective question.**
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**Q. 1** Attempt any one question of the following. **(08)**

- (i) Justify the statement with help of diagram 'Bacteria has prokaryotic cell organization'.
- (ii) Describe different steps involved in co-translational translocation of a single-pass trans-membrane protein from cytoplasm to ER lumen with the help of diagram.

1. OR

- (iii) Describe types of natural selection.

**Q. 2** Attempt any three questions of the following. **(12)**

- (i) What is cell cycle? Explain in detail the interphase as found in eukaryotic cell division.
- (ii) What are cell cycle Check points? Explain the function of any one of them in detail.

OR

What are cell cycle regulators? Explain the role of any one in detail.

- (iii) Explain the fluid mosaic model and function of plasma membrane.
- (iv) Describe the various functions of Smooth Endoplasmic Reticulum?
- (iv) Explain pattern of evolution.

**Q. 3** Do as directed. Attempt all five questions. **(05)**

- (i) Nucleoid is the characteristic location of DNA in Spirogyra. (State whether the above statement is True or False)
- (ii) Which type of cell division is observed in the cells during gametogenesis?
- (iii) Give reason: "Facilitated diffusion is a type of Passive transport".
- (v) How antibacterial drug Streptomycin works against the infection?
- (vi) What are coacervates?

**Q. 4** Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

- MCQ 1 Which among the following is the member of endomembrane system?  
 (A) Mitochondria (B) Chloroplast  
 (C) Golgibodies (D) Nucleus
- MCQ 2 Who provides the resistance against antibiotics to the bacterian cell?  
 (A) Nucleoid (B) Plasmid  
 (C) Cosmid (D) DNA
- MCQ 3 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
- MCQ 4 'Maturation promoting factor' is a well known example of which of the following?  
 (A) Cell cycle check point in cell cycle transitions (B) Cell cycle regulator in cell cycle transitions  
 (C) Cyclins and Cdks co ordination in- control of cell cycle transitions (D) All of the above
- MCQ 5 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
- MCQ 6 What is true for the somatic cell?  
 (A) Always diploid (B) Some- times Haploid  
 (C) Are also triploid (D) None of the above
- MCQ 7 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
- MCQ 8 Proteins required in the cytosol like the enzymes of glycolysis are synthesized on?  
 (A) Ribosomes on endoplasmic reticulum (B) Free ribosomes in the cytosol  
 (C) Ribosomes on nuclear membrane (D) SER
- MCQ 9 Endoplasmic reticulum were first seen in the cytoplasm of chick embryo cells by  
 (A) Porter, Claude and Fullam (B) Porter and Fullman  
 (C) Wischnitzer (D) Palade
- MCQ 10 Integration of a double-pass membrane protein into ER membrane requires presence of  
 (A) Start transfer sequence (B) Stop transfer sequence  
 (C) Signal peptidase (D) All of these
- MCQ 11 When a physical barrier divides one population into two or more populations and new species is formed, the speciation is called as  
 (A) Allopatric (B) Sympatric  
 (C) Divergent (D) None of these
- MCQ 12 When unrelated species evolve similar traits it is called as -----evolution.  
 (A) Convergent (B) Divergent  
 (C) Parallel (D) Antiparallel
- MCQ 13 Which of the following scientist done his observations on Galapagos islands to study evolution.

- (A) Redi (B) Darwin  
(C) Lamarck (D) Opane and Haldane
- MCQ 14 After some days of experiment, Miller and Uray observed following compounds in their flask
- (A) Glycine, urea, lactic acid (B) Succinic acid, creatinine, glutathione  
(C) Propionic acid, creatinine, carnitine (D) Creatinine, glycine, glutathione
- MCQ 15 Neodarwinism is framework of
- (A) Darwinism and Mendelism (B) Darwinism and Lamarckism  
(C) Lamarckism and Mendelism (D) Darwinism and Spalanzanism

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