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SARDAR PATEL UNIVERSITY

M.Sc (I Semester) Examinations

Monday, 6th January, 2014

10.30 am to 1.30 pm

PET01CAS03- Elements of Biological sciences

Total marks: 70

1. Choose the most appropriate answer **(8 x 1 = 8)**

a) Meselson and Stahl are credited with the discovery of
   a) DNA structure
   b) Semi conservative mode of replication
   c) Promoters
   d) Transformation in bacteria

b) The Okazaki fragments are joined together by
   a) DNA polymerase
   b) DNA ligase
   c) DNA helicase
   d) DNA topoisomerase

c) Which of the following base is absent in DNA?
   a) Adenine
   b) Guanine
   b) Uracil
   d) Thymine

d) Which of the following release monosaccharides other than glucose on hydrolysis?
   a) Maltose
   b) Cellobiose
   b) Trehalose
   d) Sucrose

e) Intra nuclear laminas are composed of
   a) Mitochondria
   c) Intermediate filaments
   b) Lipids
   d) Polysaccharides

f) Protein folding process takes place in
   a) ER
   c) Vacuole
   b) Golgi
   d) Endosome

g) Ultrastructural details of cell organelles can be studied by using:
   a) SEM
   c) LM
   b) TEM
   d) both a&c

h) Selective uptake of specific molecules is called as:
   a) Receptor mediated endocytosis
   c) Pionocytosis
   b) Exocytosis
   d)Phagosytosis

2. **Write briefly on <u>any seven</u>:** **(7 x 2 = 14)**

a) What are glycosaminoglycans and their role?
b) Explain the formation of a peptide bond with diagram
c) What are electromagnetic lenses?
d) What is meant by passive transport?
e) What is freeze-fracturing?
f) Telomeres
g) Stop codons
h) Role of tRNA in translation
i) Role of ER in cell cytoplasm

3. a) Explain the structure and function of cytoskeletal elements. **(06)**

b) Compare and contrast the structure and functions of ER and Golgi **(06)**

OR

b) Write a note on lysosomal structure and functions. **(06)**

4. a) Differentiate between Pro and eukaryotic cells **(06)**

b) Explain the structure and functions of nucleus **(06)**

OR

b) Write a note on Cell fractionation **(06)**

5. a) Describe the nucleosome structure with suitable illustrations **(06)**

b) Explain Griffith's experiment with a note on its significance. **(06)**

OR

b) Explain the compartmental organization of mitochondria. **(06)**

6. a) Write on the classification of amino acids on the basis of their structure. **(06)**

b) Discuss components and reactions of electron transport chain in mitochondria. **(06)**

OR

b) Discuss different types of lipids and their biological roles. **(06)**

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