

FACULTY OF SCIENCE

M. Sc. I – Semester (CBCS) Examination, December 2016

Subject : Biochemistry

Paper – IV : Bioenergetics and Cell Biology

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8 x 4 = 32 Marks)  
(Short Answer Type)

- 1 Action potential
- 2 Hydrolysis of phosphocreatine
- 3 Flagella
- 4 Antibiotic resistance
- 5 Microtubules
- 6 Lamp brush chromosome
- 7 Phase contrast microscopy
- 8 FRAP

PART – B (4 x 12 = 48 Marks)  
(Essay Answer Type)

- 9 (a) Classify various types of membrane transport. Describe Regulation by insulin of glucose transport by GLUT 4 into a myocyte.  
OR  
(b) Describe electron transport chain (ETC) in mitochondria mentioning various electron carriers. Mention some uncouplers of ETC.
- 10 (a) Describe how temperature, pH, oxygen and agitation influence the bacteria growth.  
OR  
(b) Describe the ultra-structure of cynaobacteria and mycoplasma with suitable diagram.
- 11 (a) Describe the structure of chromatin and chromosome.  
OR  
(b) Describe the interaction of chromatin and cytoskeleton during cell division.
- 12 (a) Describe how atomic microscopy and confocal microscopy can efficiently probe the exterior and interior of a biological cell respectively.  
OR  
(b) Describe with diagram, the principle of scanning and transmission electron microscopy.

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