FACULTY OF SCIENCE

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 cyanobacteria 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.