FACULTY OF SCIENCE  
M.Sc. I – Semester Examination, December 2014  

Subject: Microbiology  
Paper – IV: Biochemistry  

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 Buffer  
2 Free energy change of a reaction  
3 Complex I in ETC  
4 ATP synthase  
5 Prostaglandins  
6 Nucleotides  
7 Aromatic amino acids  
8 Peptide bond.  

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

9 a) Write an account of high energy compounds in metabolism.  
   OR  
   b) Define pH and explain its biological significance. How will you determine pH of a solution.  

10 a) Describe the components of electron transport chain with sites of oxidative phosphorylation and discuss the inhibitors of ETC.  
   OR  
   b) Give an account of bacterial photosynthesis.  

11 a) What do you mean by de novo synthesis and salvage pathways of nucleotide synthesis. Discuss pyrimidine nucleotide biosynthesis in bacteria.  
   OR  
   b) Write note on different classes of bacterial lipids giving emphasis to their structure and functions.  

12 a) Write note on:  
   i) Urea cycle  
   ii) Tertiary structure of protein  
   OR  
   b) Discuss the reactions in amino acid degradation and biosynthesis.  
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