CBCS Scheme

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15BT33

# Third Semester B.E. Degree Examination, June/July 2018
## Biochemistry

Time: 3 hrs. Max. Marks: 80

**Note:** ***Answer any FIVE full questions, choosing one full question from each module.***





### Module-1

1 a. Explain any two types of chemical reaction, with example. **(08 Marks)**

b. What are Enzymes? Add a note on classification of enzyme with one example. **(08 Marks)**

**OR**

2 a. Derive Henderson – Hassebalach equation for weak acid. Calculate the $p^H$ of the buffer which is made up of 0.05M acetic acid and 0.05M sodium acetate PKa of acetate = 4.76. **(08 Marks)**

b. Write the structures for the following compound :
i) Aminoacid containing imidozole group ii) Epimers iii) Sphingomyclin
iv) Purine nucleoside of DNA molecule. **(08 Marks)**

### Module-2

3 a. Explain in detail dark reaction. **(08 Marks)**

b. ATP serve as high energy compound. Justify. **(08 Marks)**

**OR**

4 a. Explain Non – cyclic photo phosphorylation. **(08 Marks)**

b. State the laws of thermodynamics. Calculate the overall standard free energy change for the coupled reaction of glucose phosphorylation. Explain the nature of reaction.
Glucose + Pi $\rightarrow$ glucose – 6 – phosphate + $H_2O$ $\Delta G^0$ = 13.8kJ/mol.
ATP + $H_2O \rightarrow$ ADP + Pi $\Delta G^0$ = -30 KJ/mol. **(08 Marks)**

### Module-3

5 a. With a neat labelled diagram, explain fluid moasic model for biological membrane. **(08 Marks)**

b. Illustrate and explain Uniport, Symport, Antiport and Cotransport. **(08 Marks)**

**OR**

6 a. Explain the signal transduction process in excitatory cells. **(08 Marks)**

b. Define Passive, Active and Facilitated transport. Mention examples for each. **(08 Marks)**

### Module-4

7 a. Describe the steps of glycolysis and its energetics. **(08 Marks)**

b. Explain the steps involved in the synthesis of phospholipids. **(08 Marks)**

**OR**

8 a. Give an account of the $\beta$ – oxidation of Palmitic acid and its energetics. **(08 Marks)**

b. Explain the anaplerotic nature of TCA cycle. Add a note on Oxidative phosphorylation. **(08 Marks)**

## Module-5

9 a. Describe in detail the steps of urea cycle. **(08 Marks)**

b. Give the general pathway of biosynthesis of AMP and GMP from IMP. **(08 Marks)**

**OR**

10 a. Enumerate the reaction of Pyrimidine biosynthesis. **(08 Marks)**

b. With examples, explain Transamination and Deamination reaction. **(08 Marks)**

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