Ph.D. ENTRANCE EXAMINATION, OCTOBER 2015
FACULTY OF SCIENCES
BIOCHEMISTRY

Time: 140 Minutes   Maximum Marks: 160

*Note: Answer **any twelve** questions from Section **B** and **one** question from Section **C** in the subject concerned. In Section **B, each** question carries **10** marks. Section **C** carries **40** marks. In Section **B** an answer should not exceed **100** words. In Section **C,** an answer should not exceed **500** words.*

SECTION – B

1. Outline the principle behind the functioning of a Spectrophotometer.

2. What is a zwitterion? Explain zwitterion with two examples.

3. How is the functioning of an enzyme regulated? Explain with suitable examples.

4. Elaborate the importance of isoelectric point in protein purification.

5. What is sedimentation coefficient? Explain its importance in centrifugation.

6. Derive Michaells -Menten equation and explain the derivatives.

7. What is Henderson -Hasselbalch equation? With an example describe its uses

8. What are glycosylic bonds? Explain their occurrence in biological system.

9. In a natural environment, explain the importance of muco-polysaccharides.

10. What are the roles of ATP? With a diagram explain the structure of ATP molecule.

11. Explain biological membrane transport with examples.

12. What are the derivatives of cholesterol found in mammals?

13. What are the challenges in drug delivery? How can they be overcome?

14. Outline the importance of bioinformatics tools in research.

15. What are biological data bases? High light their uses.

16. What are congenital metabolic disorders? Give three examples.

SECTION - C

1. What are the currently available strategies in the treatment of cancer?

2. What are the various methodology adopted for the purification of a protein?

3. What is pH? What is the importance of pH in biological system?

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