7146

Ph.D. ENTRANCE EXAMINATION, OCTOBER 2015

Section – B & C

Time : 140 Minutes | Max. Marks : 160

Instructions :

(This is to test the candidate's ability of defining concepts through short answers.)

1) *Answer **any twelve** questions from Section **B** and **one** question from Section **C**.*
2) *In Section **B** **each** question carries **10** marks. Section **C** carries **40** marks.*
3) *In Section **B** an answer should not exceed **100** words. In Section **C** an answer should not exceed **500** words.*
4) *Candidates should **clearly** indicate the **Section**, **Question Number** and **Question Booklet code** in the answer paper.*
5) *The candidates are **permitted** to answer questions **only** from the subject that comes under the **faculty** in which he/she seeks registration as indicated in the **application** form.*

FACULTY OF SCIENCE

1. Biochemistry

Name of Candidate

Register Number

Answer Booklet Code

Signature of Candidate

Signature of Invigilator

FACULTY OF SCIENCE

1. Biochemistry

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 Michaelis – Menten equation and explain the derivatives.
7. What is Henderson – Hasalbach 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 ?