

D 12418

(Pages : 2)

Name.....

Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCBCSS-UG)

Biotechnology – Core Course

BTY 3B 03 – BIOCHEMISTRY

Time : Three Hours

Maximum : 80 Marks

Section A

Answer any **two** out of four questions in about 1,500 words.

Each question carries 10 marks.

1. Discuss the steps in glycolysis and explain how it proceeds in muscle under anaerobic condition.
2. Explain how amino acids are classified based on polarity and charge and add a note on amphoteric property of amino acids.
3. Describe the double helical structure of DNA and explain the different conformational forms of DNA.
4. Derive Michaelis - Menten equation and define K_m . How is K_m value determined accurately?

(2 × 10 = 20 marks)

Section B

Answer any **seven** out of fourteen questions in about 750 words.

Each question carries 5 marks.

5. Explain the different types of enzyme inhibition.
6. Write down any *five* chemical reactions of monosaccharides.
7. Explain the arrangement of electron carries in electron transport chain.
8. Discuss the different types of weak interactions in biological systems.
9. Describe the sequence of reactions in urea cycle.
10. Discuss the functions of fat soluble vitamins.
11. Explain the functions of thyroxin, insulin and growth hormone.
12. Describe the different mechanisms of enzyme action.
13. Enumerate the reactions in beta oxidation pathway.
14. What is the principle of gel filtration? How is it carried out? What are its applications?
15. Describe, how lactate is converted to glucose in liver?
16. Discuss the secondary structure of proteins.
17. How are enzymes classified? Explain with examples.
18. Explain the principle and applications of SDS-PAGE.

(7 × 5 = 35 marks)

Turn over

Section C

Answer **all** questions in 300 words.

Each question carries 3 marks.

19. Henderson-Hasselbalch equation and its significance.
20. Occurrence, structure and functions of any three polysaccharides.
21. Catabolism of phenyl alanine.
22. Classification of lipids.
23. Biological functions of proteins.

(5 × 3 = 15 marks)

Section D

Answer **all** questions in about 200 words.

Each question carries 2 marks.

24. Principle of ion exchange chromatography.
25. Physiological functions and deficiency disorder of Vitamin C.
26. Titration curve of alanine.
27. Importance of pentose phosphate pathway.
28. Explain the role played by abscisic acid in plants under water stress.

(5 × 2 = 10 marks)