

Total No. of Questions : 8]

SEAT No. :

**P2732**

**[5030]-103**

[Total No. of Pages : 2

**M.Sc.**

**MICROBIOLOGY**

**MB - 503 : Cell Organization and Biochemistry  
(2013 Pattern) (Semester - I) (CSS Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) *Q.1 to Q.3 is compulsory.*
- 2) *Attempt at least two from Q.4 to Q.8*
- 3) *All questions carry equal marks.*
- 4) *Draw neat-labeled diagrams wherever necessary.*
- 5) *Use of logarithmic tables and scientific calculators is allowed.*
- 6) *Assume suitable data if necessary.*
- 7) *Figures to the right indicate full marks.*

**Q1)** Attempt any two of the following: **[10]**

- a) Explain Edman-degradation reaction. State its significance.
- b) Explain why, RNA, and not DNA, is hydrolyzed under basic pH conditions? What is the global charge of the trinucleotide ApGpUpC at neutral pH?
- c) What are tautomers? Give their implication in pairing of bases.

**Q2)** Attempt any two of the following: **[10]**

- a) Explain the retrieval pathway of residential ER protein back to ER.
- b) Write a note on confocal Microscopy.
- c) Explain structure and function of Golgi apparatus.

**Q3)** Attempt any two of the following: **[10]**

- a) Explain the process of commitment.
- b) Diagrammatically illustrate the anterioposterior body axis formation in *Drosophila*.
- c) Write a note on Hox code.

**P.T.O.**

**Q4)** Attempt any two of the following: [10]

- a) Explain C-signal transduction circuit in Myxobacteria with diagram.
- b) Explain the mechanism of quorum sensing. Add a note on Quorum sensing molecules in different types of bacteria.
- c) Explain the significance of biofilm formation.

**Q5)** Attempt any two of the following: [10]

- a) Write a note on bicarbonate buffer system.
- b) Explain concept of buffer, strength of buffer and buffer value.
- c) How does stereochemistry affects the interactions of organic molecules?

**Q6)** Attempt any two of the following: [10]

- a) What is mutarotation? Explain with examples.
- b) Draw the structure of triglyceride and enlist the functions.
- c) Write a short note on terpenes.

**Q7)** Attempt any two of the following: [10]

- a) Explain uv induced changes in vitamin D and its role in metabolism.
- b) Explain the function of iron as a cofactor.
- c) What is the coenzyme form of folic acid? Explain its function.

**Q8)** Attempt any two of the following: [10]

- a) Draw the structure of three major sex hormones and state their functions.
- b) Justify:- “Insulin counters high blood glucose”.
- c) Explain coordination between hypothalamus and pituitary gland.