

Printed Pages: 3

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BT-11

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 254101

Roll No.

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B.Tech.

(SEM. I) THEORY EXAMINATION, 2015-16

BIOCHEMISTRY, BIOPHYSICS & MICROBIOLOGY

[Time : 3 hours]

[Total Marks : 100]

SECTION - A

1. Attempt all part. All parts carry equal marks. write answer of each part in short. (2×10=20)
 - (a) Why can't we visualize single molecules by X-ray crystallography?
 - (b) If $N=10^8$, $N_0=5 \times 10^7$, and $t=2$ hours. Then calculate 'n' and generation time.
Given $\log (5 \times 10^7)$ is equal +07.69.
 - (c) Define precessional frequency.
 - (d) Write about significance of Michaelis-Menten constant (K_m).
 - (e) Classify carbohydrates. Give one example of each of them.

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[P.T.O.]

- (f) Differentiate Enrichment medium and selective medium?
- (g) Define Bragg's law.
- (h) Write about (n+1) Rule.
- (i) How can you say that Metabolism is important for us.
- (j) Define Allosteric inhibition.

SECTION - B

Attempt any five question from this section. (10x5=50)

- 2. How X-ray crystallography is useful in study of biological macromolecules.
- 3. Define phase problem. Describe various methods of overcoming of phase problems.
- 4. Describe bacterial growth kinetics. Differentiate exponential phase and stationary phase.
- 5. Write about instrumentation and application of NMR spectroscopy.
- 6. What do you mean by Bioenergetics? Describe the use of equation $\Delta G = \Delta H - T \Delta S$.
- 7. Classify different types enzyme inhibition. Describe competitive inhibition with suitable example.

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- 8. What is biomolecules? Write about functional importance of protein with suitable example.
- 9. Define Spin-spin Splitting. How it is beneficial for us in structure determination.

SECTION - C

Attempt any two question from this section. (15x2=30)

- 10. What do you mean by molecular modeling? How molecular modeling is useful for us describe in detail?
- 11. Differentiate cell organization in prokaryotes and eukaryotes. Describe structure and function of Ribosome and Mitochondria.
- 12. What do you mean by enzyme kinetics? Describe enzyme kinetics with the help of Michaelis-Menten Equation.

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