Birla Institute of Technology and Sciences, Pilani, Pilani-Campus, Rajasthan
Mid-term examination (CLOSED BOOK)
I Semester 2023-2024
Course Name: Biological Chemistry Course Code: PHA F242
Date: 10/10/2023 Duration: 55 min Max. Marks: 20

Instructions

1. All questions are compulsory.
2. Please write correct question number in answer sheets.
3. Draw structures wherever necessary.

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1. Explain the entire process (along with structures) of formation of acetyl Co-A from glucose? [7]

2. Explain briefly with examples (wherever necessary): [2+1+2=5]
   (i) How is transition state different from intermediate?
   (ii) Proximity catalysis
   (iii) How the synthesis of a new glycogen molecule initiated?

3. What is meant by the following statement:
   "Enzymes affect rate of reaction not equilibrium"?
   Derive the Michaelis-Menten equation, and elucidate its significance in understanding enzyme kinetics. [2+6=8]

Birla Institute of Technology and Sciences, Pilani, Pilani-Campus, Rajasthan
Mid-term examination (OPEN BOOK)
I Semester 2023-2024
Course Name: Biological Chemistry Course Code: PHA F242
Date: 10/10/2023 Duration: 35 min Max. Marks: 10

Instructions

1. All questions are compulsory.
2. Please write correct question number in answer sheets.
3. Draw structures wherever necessary.

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1. Enzymes are biological catalyst enhancing the rate of reaction by several folds. Various theories explaining the mechanism of action of enzymes have been proposed. [2+3=5]

   (i) An enzyme X is said to have multiple substrates. With the help of an example give name and the whole mechanisms of such reactions?

   (ii) Why Km remains increases in competitive inhibition but decreases in uncompetitive inhibition?

2. Explain the following: [1+1+1+2=5]

   (i) Phosphogluconate pathway is critical for metabolism of xenobiotics.

   (ii) Importance of malate formation in gluconeogenesis.

   (iii) Bone marrow has an increased metabolism of glucose via HMP.

   (iv) NIDDM patients can have normal or high levels of insulin in circulation.