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**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

**B.Sc. BIOTECHNOLOGY– II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2018**

**BT 215 : Kinetics, Metabolism and Applied Microbiology**

Time- 2 ½ hrs Max Marks-70

**This paper contains TWO printed pages and THREE parts**

1. **Explain/Define any TEN of the following 2x10=20**
2. Define mycotoxins with an example.
3. What are adherence factors?
4. Name two bacterial strains which colonise human tooth.
5. What are enteric bacteria?
6. What is glycogenin?
7. State the role of aspirin.
8. Name the defective enzyme and symptoms of Phenlyketonuria.
9. Name the defective enzyme and symptoms of Her’s disease.
10. Mathematically show that Km = [S] when Vo = Vmax/2
11. Define energy coupling and give an example of coupled reactions.
12. If you are measuring the effect of temperature on the rate of an enzyme-catalyzed reaction and you plot reaction rate against temperature, which of the graphs in the figure below would you expect your plot to resemble? Explain why temperature has this effect.

 

1. What are the different types of signals cells receive? Give examples.

BT-215-A-17

1. **Write short notes on any FIVE of the following 6x5=30**
2. Explain Transdeamination.
3. Explain the reactions of beta oxidation proper.
4. Explain the role of *Rhizobium sp* in fixing nitrogen.
5. Explain the pathogenicity of streptococci.
6. Discuss any three important molecular biology studies that support epidemiological data, suggesting the spread of HIV strains.
7. What are the different types of enzyme inhibition? Draw typical Line weaver Burk plots for these types of enzyme inhibition.
8. Describe the three major classes of membrane receptors.
9. **Answer the following 10x2=20**
10. Explain in detail the process of glycolysis.

**Or**

|  |  |
| --- | --- |
| **[S], µM** | **Vo, µM/min** |
| **2** | **2.9** |
| **3** | **3.8** |
| **4** | **4.4** |
| **5** | **5.0** |
| **6** | **5.4** |
| **7** | **5.8** |
| **8** | **6.2** |
| **9** | **6.4** |
| **10** | **6.7** |

1. You measure the kinetics of an enzyme E as a function of substrate concentration as shown in the table. The enzyme concentration is maintained constant at a level of 1 µM (=10-6 M). Draw a Lineweaver-Burk plot and determine Vmax, Km from the graph.
2. Explain the role of bacteria in biomining.

**Or**

1. Discuss the chemical properties and preservation techniques of food.