Indian Association for the Cultivation of Science

(Deemed to be University under *de novo* Category)

Master's/Integrated Master's-PhD Program/Integrated Bachelor's-Master's Program/PhD Course

Mid-Semester Examination-Spring 2024

Subject: Biochemistry Genetics and Evolution ***Subject Code(s): BIS 1201***

Full Marks: 25 ***Time Allotted: 2 h***

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1. How many epimers are possible for L Glucose? Write all the epimers of L Glucose with structure and name. 3
2. In cancer, it has been found the GLUT receptors and most of the glycolytic enzymes get overexpressed please explain this phenomenon from the biochemistry point of view. 3
3. D Glucose is more prevalent in nature than D Galactose, write a logical explanation. 3
4. What are the possible fates for Pyruvate 3
5. Matriptase is a cell surface protein that gets activated by the acidic pH. Active Matriptase can activate a series of cancerous signaling by activating GPCR. It has been found that Matriptase gets over-activated in cancer cells but not the normal cells, why? 3 (G-Protein couple Receptor)
6. Why GLUT3 receptors are so abundant in brain cells? 3
7. If you have gained lots of weight doctors recommend you to be on a low carb diet and do vigorous exercise. Explain from a biochemistry point of view. 3
8. What do you expect if someone overexpresses the enzyme hexose phosphatase in a particular cell? 2
9. What are the hexoses that provide the same osazone that D glucose? 2

Phosphatase ⟶ Enzyme that cleaves phosphate linkage.