

GATE Life Sciences Question Paper and Answer Key 2024

1. Pairs of amino acids which will not be incorporated in Polypeptide
- (a) Ornithine and Citrulline (b) 4-Hydroxyproline and gamma carboxy glutamate (c) 4-Hydroxyproline and 5-Hydroxylysine (d) Gamma carboxy glutamate and Desmosine

Ans: All the above (MSQ Question)

2. Mammalian cells at low temperature increase the sterol content in the membrane which results into
- (a) Enhancement in membrane fluidity (b) Stabilization of proteins (c) Decrease in membrane fluidity (d) Increase permeability to water

Ans: (a) Enhancement in membrane fluidity

3. Common metabolites in Glycolysis, Nucleotide synthesis and Glycogen Synthesis
- (a) Oxaloacetate (b) Glycerol-3-phosphate (c) Citrate (d) Glucose-6-phosphate

Ans: Glucose-6-phosphate

4. Which part or complex of the Electron Transport Chain (ETC) is primarily blocked by rotenone? a) Complex I (NADH dehydrogenase) b) Complex II (Succinate dehydrogenase) c) Complex III (Cytochrome bc1 complex) d) Complex IV (Cytochrome c oxidase)

Ans: a) Complex I (NADH dehydrogenase)

5. The location of CREB1 transcription factor is -
- a) Nucleus b) Mitochondria c) Lysosome d) Peroxisomes

Ans: a) Nucleus

6. At pH 1.5, most amino acids would be in their protonated form, meaning they would have an extra hydrogen ion (+H) compared to their neutral state. In this highly acidic environment, both the amino group (-NH₂) and the carboxyl group (-COOH) of the amino acid would be protonated, resulting in an overall charge of +1 for the amino acid. What is the charge?
- a) Uncharged b) charged c) charged at both ends

Ans: c) charged at both ends

7. Collateral open and endarch type of vascular bundles found in _____
- a) Monocot root b) Monocot Stem c) Dicot root d) Dicot stem

Ans: d) Dicot stem

8. In one mole of helium in a reversible system, the work done on the system is 1729.48J. Its volume gets double of its initial R. What is the temperature?

Ans: 416K

9. Bacteria with initial 10^2 were grown on a medium. After a few hours, the count was 10^6 . What is the number of generations it has undergone?

Ans: 4

10. 10 nm concentration of solution showed 90% absorbance at 280 nm with a curvette path length of 10 mm. Calculate the molar coefficient.

Ans: E=0.009mL/mm mol