

B.Sc. (Honours) Examination, 2019

Semester–VI

Zoology

**Course – CCT-XVII (Core)
(Biochemistry and Physiology)**

Time: Three Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer *any five* questions.

1. Explain activation energy and transition state of an enzyme catalysed reaction. How do changes in substrate concentration, temperature and pH influence enzyme activity?
2+6=8
 2. What do you mean by ‘substrate channeling’? How does oxidative decarboxylation of pyruvate occur? What is the significance of citric acid cycle? Calculate the ATP yield from the complete aerobic oxidation of one molecule of glucose.
1+3+2+2=8
 3. What is gluconeogenesis? Describe in detail the reactions of gluconeogenesis.
2+6=8
 4. Discuss the various mitochondrial electron carriers. How does complex IV facilitate tetra-electronic reduction of oxygen?
4+4=8
 5. What is erythropoiesis? How is it regulated by certain hormone and vitamins? Why does mismatch of D-antigen lead to erythroblastosis fetalis?
1+3+4=8
 6. Describe the zonation of adrenal cortex. ‘Aldosterone is known as a salt retaining hormone’ – justify. Write the biosynthetic pathway of catecholamines. Discuss the renin-angiotensin system.
2+2+2+2=8
 7. Write notes on *any four* of the following:
4×2=8
 - (a) Titration curve of glycine.
 - (b) Isozymes.
 - (c) Oxygen-haemoglobin dissociation curve.
 - (d) Cell types of gastric gland.
 - (e) Fermentation.
 - (f) Salient features of DNA double helical structure.
-