

UPSC Mains 2025 Aug 31, 2025 Zoology (Paper 2) Question Paper and Answer Key PDF

Q. No.	Question	Check Solution
Q1 (A)	Protein sorting in Golgi apparatus	Check Solution
Q1 (B)	Structure and function of Lampbrush chromosome	Check Solution
Q1 (C)	Symptoms, causes and treatment of thalassemia	Check Solution
Q1 (D)	Coupling and repulsion phases of linkage	Check Solution
Q1 (E)	Sympatric and allopatric speciation	Check Solution
Q2 (A) (i)	Describe composition of plasma membrane.	Check Solution
Q2 (A) (ii)	Differentiate between facilitated and passive diffusion across the membrane with examples.	Check Solution
Q2 (B)	Explain how mutations affect variations in population and natural selection.	Check Solution
Q2 (C)	Draw pedigrees for autosomal recessive and sex-linked inheritance using examples from human.	Check Solution
Q3 (A) (i)	Describe the synthetic theory of evolution.	Check Solution
Q3 (A) (ii)	Describe common types of mimicry in insects with suitable examples.	Check Solution
Q3 (B)	Discuss the process of chain elongation during protein synthesis in prokaryotes.	Check Solution
Q3 (C)	Describe the mechanism of ribozyme action and comment on its technological applications.	Check Solution
Q4 (A)	Describe the steps of constructing a recombinant DNA and its cloning.	Check Solution
Q4 (B)	Discuss the major morphological modifications during horse evolution.	Check Solution
Q4 (C)	Write down the salient features of zoological nomenclature.	Check Solution
Q5 (A)	Write short notes in 150 words: Block to polyspermy	Check Solution
Q5 (B)	Write short notes in 150 words: Fate map of frog embryo	Check Solution
Q5 (C)	Write short notes in 150 words: Activation energy based mechanism of enzyme action	Check Solution
Q5 (D)	Write short notes in 150 words: Structure of dipeptide unit of a protein	Check Solution
Q5 (E)	Write short notes in 150 words: Transmission of nerve impulse through synapse	Check Solution
Q6 (A) (i)	Write down the reactions that produce NADH during Krebs cycle.	Check Solution
Q6 (A) (ii)	Explain the role of proton gradient in oxidative ATP synthesis.	Check Solution
Q6 (B)	Describe characteristic features and specific functions of lymphocytes, monocytes and neutrophils.	Check Solution
Q6 (C)	Diagrammatically describe the steps of development of heart in mammals.	Check Solution
Q7 (A) (i)	Explain sigmoidal nature of oxygen dissociation curve for hemoglobin.	Check Solution

Q7 (A) (ii)	Describe differences between adult and fetal hemoglobin and comment on their physiological significance.	Check Solution
Q7 (B)	Discuss the mechanism of action of cytotoxic-T cell.	Check Solution
Q7 (C)	What are homeotic genes? Explain their role in body axis formation in chick.	Check Solution
Q8 (A)	Describe the stages of fertilization in chick with diagram.	Check Solution
Q8 (B)	Draw structure of cholesterol and explain its role in health and diseases.	Check Solution
Q8 (C)	Discuss the role of ovarian hormones in female reproduction.	Check Solution

