

ZOOLOGY

TIME ALLOWED: THREE HOURS	(PART-I MCQs) MAXIMUM MARKS: 20
PART-I (MCQs) : MAXIMUM 30 MINUTES	(PART-II) MAXIMUM MARKS: 80
NOTE: (i) First attempt PART-I (MCQs) on separate OMR Answer Sheet which shall be taken back after 30 minutes. (ii) Overwriting/cutting of the options/answers will not be given credit. (iii) There is no negative marking. All MCQs must be attempted.	

PART-I (MCQs)(COMPULSORY)

Q.1. (i) Select the best option/answer and fill in the appropriate Box ☐ on the OMR Answer Sheet. (20x1=20)
(ii) Answers given anywhere else, other than OMR Answer Sheet, will not be considered.

- What is the term for the process by which a caterpillar becomes a butterfly?
(A) Fragmentation (B) Budding (C) Metamorphosis (D) None of these
- The monosaccharide which is readily absorbed through the intestine independent of Sodium ions is:
(A) Fructose (B) Glucose (C) Galactose (D) None of these
- The biodiversity at a geographic scale is called:
(A) Beta diversity (B) Alpha diversity (C) Gamma diversity (D) None of these
- _____ is the lag between the creation of the habitat fragment and the decrease in species richness to the equilibrium level.
(A) Fragment destruction (B) Relaxation time (C) Retention time (D) None of these
- Which co-enzyme is NOT involved in oxidative decarboxylation of pyruvic acid?
(A) CoA-SH (B) Mg^{++} (C) Biotin (D) None of these
- The flexible rod along the dorsal midline in an embryo of chordates is replaced by:
(A) Nerve chord (B) Sensory organs (C) Vertebral column (D) None of these
- The pigment(s) that contain various forms of iron is/are:
(A) Myoglobin (B) Hemoglobin (C) Both (A) & (B) (D) None of these
- Prader-Willi syndrome is the heterozygous deletion in long arm of chromosome at:
(A) 5 (B) 15 (C) 3 (D) None of these
- Sympathetic and parasympathetic limbs of the Autonomic Nervous System that mostly work opposite to each other are responsible for regulating body homeostasis by:
(A) Involuntary internal process (B) Involuntary external process
(C) Voluntary internal process (D) None of these
- Erythropoietin, a hormone, is primarily produced by _____ and is involved for RBC production:
(A) Liver (B) Kidney (C) Leukocytes (D) None of these
- Most crustaceans have blue blood due to the presence of: —
(A) Haemoglobin (B) Erythrocrurin (C) Haemocynine (D) None of these
- _____ is important intestinal fluke of large animals.
(A) Fasciola hepatica (B) Nanophyteus (C) Schistosoma (D) None of these
- Which class do frogs and salamanders belong to?
(A) Reptilia (B) Amphibia (C) Mammalia (D) None of these
- Which type of biome has the highest annual precipitation?
(A) Tropical rainforests (B) Grasslands (C) Tundra (D) None of these
- The evolution of ecologically related species is sometimes co-ordinated such that each species exerts a strong selective influence on others. This is:
(A) Coexistence (B) Coevolution (C) Mutualism (D) None of these
- Which structure in fish helps them to maintain buoyancy?
(A) Swim bladder (B) Scales (C) Fins (D) None of these
- Which of the following statements is **TRUE** about animal behavior?
(A) Animals will derive their current behavior from past experiences
(B) Two animals of the same species will have exactly identical behavior
(C) Animals will behave in the same manner with all human beings (D) None of these
- Diurnal animals are those that are
(A) Active during the night and hide during the day (B) Active during the day and hide at night
(C) Active during dawn and dusk only (D) None of these
- The portion of the digestive tract of a pigeon that produces "pigeon's milk" used in feeding young is the:
(A) Proventriculus (B) Gizzard (C) Crop (D) None of these

20. All of the following statements regarding “lung ventilation” and “gas exchange” are **TRUE EXCEPT**:

- (A) Abdominal and thoracic air sacs are compressed by body muscles to move air through the respiratory system
- (B) Gas exchange occurs in blind-ending sacs called alveoli
- (C) Two respiratory cycles are required to move a volume of air through the respiratory system
- (D) None of these

PART-II

- NOTE:** (i) **Part-II** is to be attempted on the separate **Answer Book**.
(ii) Attempt **ONLY FOUR** questions from **PART-II**. **ALL** questions carry **EQUAL** marks.
(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.
(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.
(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.
(vi) Extra attempt of any question or any part of the question will not be considered.

- Q. No. 2.** Differentiate between enzymes, co-enzymes, and co-factors in a biological cell. Describe with a flow chart which enzymes/co-enzymes take part in glycolysis and Krebs’s Cycle. **(20)**
- Q. No. 3.** Explain the transcription and processing of mRNA in the nucleus. Describe in detail the roles of mRNA, tRNA, and rRNA in polypeptide synthesis. **(20)**
- Q. No. 4.** Explain with diagrams the structure, synthesis, and functions of thyroid hormones. Describe hypo-and-hyper-thyroidism in detail. **(20)**
- Q. No. 5.** Differentiate between blood, plasma, and serum. Explain the various types and sub-types of blood cells in mammals. What is immunity? Explain the roles of different types of lymphocytes in immunity. **(20)**
- Q. No. 6.** Discuss the economic and medical importance of ticks and mites of order Acari to human well-being. **(20)**
- Q. No. 7.** What are the advantages of migration of birds? What are the major migratory routes of birds? How birds navigate? **(20)**
- Q. No. 8.** Write short notes on any TWO of the following: **(10 each) (20)**
- a. Mechanism of action of protein hormones
 - b. Leishmaniasis in human
 - c. Types of feathers in birds
