

ZOOLOGY, PAPER-I

**FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION FOR
RECRUITMENT TO POSTS IN BPS-17 UNDER
THE FEDERAL GOVERNMENT, 2010**

<u>Roll Number</u>

ZOOLOGY, PAPER-I

TIME ALLOWED:	(PART-I) 30 MINUTES	MAXIMUM MARKS:20
	(PART-II) 2 HOURS & 30 MINUTES	MAXIMUM MARKS:80

NOTE: (i) First attempt PART-I (MCQ) on separate Answer Sheet which shall be taken back after 30 minutes.
(ii) Overwriting/cutting of the options/answers will not be given credit.

PART – I (MCQ)
(COMPULSORY)

- Q.1. Select the best option/answer and fill in the appropriate box on the Answer Sheet. (20)**
- (i) Chano cysts are found in?
 (a) Coelentrate (b) Annelida (c) Porifera
 (d) Arthropoda (e) All of these
- (ii) House fly is a common insect having _____ legs.
 (a) 4 (b) 6 (c) 8 (d) None of these
- (iii) Silver fish is included in:
 (a) Pisces (b) Arthropoda (c) Annelida (d) None of these
- (iv) Number of vertebrae in neck of a giraffe are:
 (a) 10 (b) 5 (c) 7 (d) None of these
- (v) Flame cell is typical of:
 (a) Annelida (b) Chordata (c) Porifera (d) Platyhelminthes
 (e) None of these
- (vi) Nervous system originates from:
 (a) Epidermis (b) Mesodermis (c) Endodermis (d) None of these
 (e) All of these
- (vii) Mammals are characterized by:
 (a) Mammary Glands (b) Hair (c) All of these (d) None of these
- (viii) Nucleus is not present in RBC of:
 (a) Fish (b) Snake (c) Bird (d) Mammal
 (e) None of these
- (ix) Scales in fish derive their origin from:
 (a) Epidermis (b) Mesodermis (c) Endodermis (d) None of these
- (x) Sound in insect is produced through:
 (a) Mouth (b) Tracheal movements (c) Wing beat (d) None of these
- (xi) Sole of foot in man has _____ location:
 (a) Dorsal (b) Ventral (c) lateral (d) None of these
- (xii) Coelome in adult mammals is represented by:
 (a) Visceral cavity (b) Cavity in brain (c) Both of these (d) None of these
- (xiii) The Skelton in insects is:
 (a) Exoskeleton (b) Endoskeleton (c) None of these (d) Both of these

ZOOLOGY, PAPER-I

- (xiv) Sea horse is included in:
(a) Mammals (b) Fish (c) Reptiles (d) None of these
- (xv) Circulatory system is open type in:
(a) Annelida (b) Insecta (c) Mammals (d) None of these
- (xvi) The body cavity is regarded as pseudocoel in Nematodes because:
(a) Has ectodermal origin
(b) Not completely lined by Mesodermal epithelium
(c) Has endodermal origin
(d) None of these
(e) All of these
- (xvii) True metaneric segmentation is characteristic of:
(a) Molluses (b) Annelida (c) Arthropoda (d) None of these
- (xviii) Hollow dorsal nervous system is present in:
(a) Amphioxus (b) Fish (c) Mammals (d) None of these
(e) All of these
- (xix) Contractile vacuole in protozoa is mainly responsible for:
(a) Excretion (b) Osmoregulation (c) respiration (d) None of these
- (xx) Scorpion is included in:
(a) Insecta (b) Arachnida (c) Echinodermata (d) None of these

PART – II

NOTE:	<p>(i) PART-II is to be attempted on the separate Answer Book.</p> <p>(ii) Attempt ONLY FIVE questions from PART-II, selecting THREE questions from SECTION-I and TWO from SECTION-II. All questions carry EQUAL marks.</p> <p>(iii) Be precise in your answers and draw labelled diagrams, wherever required.</p> <p>(iv) Extra attempt of any question or any part of the attempted question will not be considered.</p>
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SECTION – I

- Q.2.** (a) “A protozoan cell is not equal to a cell of multicellular organism”. Discuss the statement. (8)
(b) “Sponges are at colonial level of cellular organization”. Justify the statement. (8)
- Q.3.** (a) How will you differentiate between corals and coral reefs? How are different types of coral reefs formed? (3+7)
(b) Discuss parasite adaptation with special reference to platyhelminthes. (6)
- Q.4.** (a) Define metameric segmentation. Explain with reference to Annelida. (2+6)
(b) Discuss metamorphosis with reference to insects. (8)
- Q.5.** Write short notes on: (16)
(i) Echinoderm affinity (ii) Shell in Mollusca (iii) Importance of Nematodes (4+4+4+4)
(iv) Polymorphism – coelentrata

SECTION – II

- Q.6.** (a) Discuss Amphioxus as a complete chordate. (8)
(b) “Hemichordates have both chordate and non-chordate character”. Justify. (8)
- Q.7.** (a) Discuss evolution of heart in different chordate groups. (8)
(b) Give a brief account of embryonic membranes. (8)
- Q.8.** (a) Define biological migration. Discuss the phenomenon with reference to birds. (8)
(b) “Birds are said to be glorified reptiles”. Justify the statement. (8)
- Q.9.** Write short notes on: (16)
(a) Scales in Fishes (b) Exoskeleton in mammals (4+4+4+4)
(c) Feathers in Birds (d) Desert adaptations in Reptiles

ZOOLOGY, PAPER-II

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Roll Number

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TIME ALLOWED:	(PART-I) 30 MINUTES	MAXIMUM MARKS:20
	(PART-II) 2 HOURS & 30 MINUTES	MAXIMUM MARKS:80

NOTE: (i) First attempt PART-I (MCQ) on separate Answer Sheet which shall be taken back after 30 minutes.
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PART – I (MCQ)
(COMPULSORY)

Q.1. Select the best option/answer and fill in the appropriate box on the Answer Sheet. (20)

- (i) Cell membrane is formed of:

(a) Carbohydrate	(b) Lipid	(c) Protein
(d) Lipoprotein	(e) None of these	
- (ii) Electron transport chain reaction occur in:

(a) Cell membrane	(b) Cell wall	(c) Endoplasm
(d) Mitochondrion	(e) None of these	
- (iii) Ribosomes in cell are responsible for:

(a) Protein formation	(b) Glycolysis	(c) Lipid breakdown
(d) All of these	(e) None of these	
- (iv) Golgi complex is responsible for:

(a) Carbohydrate metabolism	(b) Protein synthesis	(c) Lipid synthesis
(d) None of these	(e) All of these	
- (v) Basic excretory chemicals in all the cells is:

(a) Urea	(b) Uric acid	(c) Ammonia
(d) None of these	(e) All of these	
- (vi) Oxygen transport from lungs to tissue occurs through:

(a) Difference in pressure	(b) Solubility in plasma	(c) Attachment with RBC surface
(d) None of these	(e) All of these	
- (vii) FSH (Follicle Stimulating Hormone) is produced in:

(a) Ovary	(b) Hypothalamus	(c) Pituitary
(d) None of these	(e) All of these	
- (viii) Lipase is an enzyme responsible for:

(a) Carbohydrate metabolism	(b) Lipid breakdown	(c) Protein breakdown
(d) None of these		
- (ix) Law of segregation is applicable to:

(a) Homozygous individual	(b) Heterozygous individual
(c) Both Homozygous and heterozygous	(d) None of these
- (x) Sex linked genes concern:

(a) Sex characters	(b) Somatic character
(c) Mostly somatic character	(d) None of these
- (xi) XXY individual in man is a phenotypic male, because:

(a) Two X chromosomes are present	(b) Y-chromosome is present
(c) Both X and Y chromosomes are present	(d) None of these
- (xii) Trisomic condition can be produced through:

(a) Primary Non-disjunction	(b) Secondary non-disjunction	(c) Both a and b	(d) None of these
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- (xiii) First living organism on this planet was:

(a) A protozoan	(b) An algae	(c) Bacteria	(d) A virus	(e) None of these
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- (xiv) Theory of Natural Selection was proposed by:

(a) Charles Darwin	(b) A.R. Wallace	(c) Both a and b	(d) None of these
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- (xv) Lamarck's theory of inheritance of acquired characters says:

(a) Environment forces a character	(b) Environment selects a character
(c) Environment has no effect	(d) None of these

ZOOLOGY, PAPER-II

- (xvi) Orthoselection means:
(a) Selection occurring at different times (b) Selection occurring at different rates
(c) Selection occurring in one direction (d) None of these
(e) All of these
- (xvii) Haeckle's biogenetic law says:
(a) Ontogeny repeats phylogeny (b) Phylogeny repeats ontogeny
(c) None of these (d) Both a and b together
- (xviii) Ecosystem is a system involving biotic and abiotic components which:
(a) Interact (b) Interact for energy flow (c) No interaction (d) None of these
- (xix) Nitrogen biogeochemical cycle is regarded as gaseous cycle because:
(a) Nitrogen is a gas (b) Recycling is almost complete
(c) Major part of cycle is in gaseous state (d) None of these
- (xx) Raw material for evolution are variation, which are produced through:
(a) Gene mutation (b) Chromosomal aberration (c) Both a and b (d) None of these

PART – II

NOTE:	<p>(i) PART-II is to be attempted on the separate Answer Book.</p> <p>(ii) Attempt ONLY FIVE questions from PART-II, selecting at least THREE questions from SECTION-I and TWO questions from SECTION-II. All questions carry EQUAL marks.</p> <p>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</p>
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SECTION-I

- Q.2.** (a) Describe structure, chemical composition and function of Endoplasmic reticulum. (10)
(b) Define membrane system. What are the main members of this system in a cell? (6)
- Q.3.** (a) Draw neat diagrams to show different stages of meiosis in a cell, where diploid number of chromosomes is 6. (9)
(b) Describe the phenomenon of transcription. (7)
- Q.4.** (a) Discuss the mechanism of transport of carbon dioxide from tissue to lungs. (8)
(b) How are the nerve impulses pass through the nervous network. (8)
- Q.5.** (a) Develop a list of the hormones secreted by pituitary gland and indicate their target organs and effects. (10)
(b) Define excretion. What are the rationales for adapting to different excretory substances in different animal groups? (6)
- Q.6.** (a) Define Epistasis. Describe six basic types of epistatic reactions. (10)
(b) Define sex-linkage. Explain the phenomenon with one example. (6)

SECTION-II

- Q.7.** (a) Write an essay on possible origin of life. (12)
(b) "Fossils provide some important evidences of evolution". Discuss. (4)
- Q.8.** (a) "Hardy Weinberg Law provides the basis for modern synthesis on mechanism of evolution". Explain. (8)
(b) "Darwin and Wallace worked under identical conditions but in different areas to develop the theory of natural selection". Justify the statement. (8)
- Q.9.** (a) Define an ecosystem. Discuss the system considering the example of a pond as an almost complete ecosystem. (12)
(b) List four adaptations of animals to desert conditions. (4)
