FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION FOR
RECRUITMENT TO POSTS IN BPS-17 UNDER
THE FEDERAL GOVERNMENT, 2009

ZOOLOGY, PAPER-I

S.No.	
R.No.	

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) What is the function of contractile vacuole?
(a) respiration (b) reproduction (c) osmoregulation
(d) digestion (e) None of these

(ii) Specules are secreted by special mesenchymal amoebocytes called:
(a) scleroblasts (b) microscleres (c) myocytes
(d) collencytes (e) None of these

(iii) True nerve cells or ganglion cells occur for the first time in:
(a) Protozoa (b) Porifera (c) Coelenterata
(d) Annelida (e) None of these

(iv) The process by which an organism can replace its lost or damaged body parts is called:
(a) reformation (b) regeneration (c) reclamation
(d) reconstruction (e) None of these

(v) Nematocysts are found in:
(a) Protozoa (b) Porifera (c) Annelida
(d) Mollusca (e) None of these

(vi) In polychaetes the locomotory organ is:
(a) pseudopodium (b) neuropodium (c) notopodium
(d) parapodium (e) None of these

(vii) Worms belonging to phylum platyhelminthes are commonly known as:
(a) round worms (b) ring worms (c) segmented worms
(d) earth worms (e) None of these

(viii) Bipinnaria is a larval form of:
(a) Coelenterate (b) Polychaeta (c) Echinodermata
(d) Cestoda (e) None of these

(ix) Closed type of circulatory system is found in:
(a) Platyhelminthes (b) Annelida (c) Porifera
(d) Arthropoda (e) None of these

(x) The two common mosquito genera, Anopheles and Culex, can be easily identified by their:
(a) colour (b) flying speed (c) size
(d) sitting posture (e) None of these

(xi) Sweat glands are epidermal glands and are found in:
(a) all birds (b) reptiles and mammals (c) mammals only
(d) birds and reptiles (e) None of these

(xii) Sternum is absent in:
(a) mammals (b) birds (c) amphibians
(d) fishes (e) None of these

(xiii) Amphioxus belongs to:
(a) Cephalochordata (b) Hemichordata (c) Urochordata
(d) Cyclostomata (e) None of these

(xiv) The urochordates or tunicates are marine animals, commonly known as:
(a) Sea cucumber (b) Sea squirts (c) Sea urchin
(d) Sea star (e) None of these

(xv) Optic lobes are found in:
(a) fore brain (b) mid brain (c) hind brain
(d) medulla (e) None of these

(xvi) The number of cervical vertebrae in most mammals is:
(a) two (b) four (c) nine
(d) eleven (e) None of these

(xvii) Lymph hearts are absent in:
(a) fishes (b) amphibians (c) reptiles
(d) mammals (e) None of these

(xviii) The lymph capillaries coming from intestinal villi are called:
(a) veins (b) lymph nodes (c) lacteals
(d) lymph duct (e) None of these

(xix) How many caudal vertebrae are found in man?
(a) 1 – 2 (b) 3 – 4 (c) 5 – 6
(d) 7 – 8 (e) None of these

(xx) The inner membrane of the two foetal membranes in reptiles, birds and mammals is called:
(a) chorion (b) amnion (c) peritoneum
(d) pericardium (e) 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**, selecting at least **TWO** questions from **EACH SECTION**. All questions carry **EQUAL** marks. **(iii)** Extra attempt of any question or any part of the attempted question will not be considered.

SECTION – I

Q.2. (a) Write an essay on "Protozoa and diseases". **(10)**
(b) What are coral reefs? Give an account of the various forms of coral reefs. **(6)**
(c) Coelenterates show some resemblances with Porifera. Discuss briefly. **(4)**

Q.3. (a) Given an account of the canal system in sponges. **(10)**
(b) What is adaptation? Briefly discuss parasitic adaptations in platyhelminthes. **(6)**
(c) Define the following terms: **(4)**
(i) Polymorphism (ii) Metamerism (iii) Parasitism (iv) Osmoregulation

Q.4. (a) Describe the water vascular system of Echinodermata. **(10)**
(b) Give an account of human diseases caused by nematodes. **(7)**
(c) What is conjugation? Briefly discuss its significance. **(3)**

Q.5. Write short notes on: **(20)**
(i) Torsion in gastropods (ii) Flame cells (iii) Spicules (iv) Coelom

SECTION – II

Q.6. (a) Write an essay on "Flight adaptations of birds". **(10)**
(b) What is cleavage? Describe different types of cleavages, with example, found in chordata. **(6)**
(c) What are the functions of blood? **(4)**

Q.7. (a) What is placenta? Give classification of placenta in mammals according to the mode of implantation. **(8)**
(b) Describe various types of heart found in vertebrates. **(8)**
(c) Give the classification of vertebrate eggs according to the quantity of yolk they contain. **(4)**

Q.8. Write short notes on: **(5+5+5+5)**
(i) Uriniferous tubule of a mammal (ii) Neuron
(iii) Functions of the skin (iv) Structure of the bone

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ZOOLOGY, PAPER-II

S.No.	
R.No.	

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) Which part of the brain detects temperature changes in the blood?
(a) cerebellum (b) cereberal hemisphere (c) hypothalamus
(d) medulla (e) None of these

(ii) From which of the following is urea formed?
(a) fat (b) glycerol (c) protein
(d) starch (e) None of these

(iii) Where are hormones destroyed?
(a) adrenal gland (b) kidney (c) liver
(d) pancreas (e) None of these

(iv) During the beating of the heart, in which region will the highest pressure develop?
(a) left atrium (b) left ventricle (c) pulmonary artery
(d) right ventricle (e) None of these

(v) Which molecules are produced by the digestion of starch and of protein?
(a) glycerol and amino acids (b) glycerol and fatty acids (c) sugar and amino acids
(d) sugar and fatty acids (e) None of these

(vi) Which type of cell stimulates the release of adrenaline?
(a) white blood cells (b) muscle cells (c) pancreatic cells
(d) red blood cells (e) None of these

(vii) Which secretion, released into the alimentary canal, contains no enzymes but speeds up fat digestion?
(a) bile (b) intestinal juice (c) mucus
(d) pancreatic juice (e) None of these

(viii) Which of the following normally enters the blood as it passes through the pancreas?
(a) amino acids (b) glycogen (c) insulin
(d) lipase (e) None of these

(ix) Which of the following is an example of discontinuous variation?
(a) blood group (b) height (c) intelligence
(d) weight (e) None of these

(x) Which of the following would be more prominent in a secretary cell than in a non-secretary cell?
(a) golgi apparatus (b) mitochondria (c) ribosomes
(d) pinocytotic vessicles (e) None of these

(xi) Which of the following is found in both DNA and messenger RNA?
(a) ribose (b) thymine (c) sugar-phosphate chain
(d) double helix structure (e) None of these

(xii) What is carried by a molecule of transfer RNA?
(a) an amino acid molecule (b) enzyme for protein synthesis (c) information from the DNA
(d) sequence of codons (e) None of these

(xiii) The populations of all the species in a given habitat are referred to as the:
(a) biosphere (b) community (c) ecosphere
(d) ecosystem (e) None of these

(xiv) Which of the following is not recycled in ecosystem?
(a) carbon (b) energy (c) sulphur
(d) water (e) None of these

(xv) In most ecosystems, the greatest amount of energy flows through the:
(a) secondary consumers (b) herbivores (c) carnivores
(d) decomposers (e) None of these

(xvi) During which phase of meiosis are chiasmata formed?
(a) prophase I (b) metaphase II (c) metaphase I
(d) telophase II (e) None of these

(xvii) Who proposed the mutation theory of Evolution?
(a) Lamarck (b) Darwin (c) de Vries
(d) Wallace (e) None of these

(xviii) During which stage of meiosis do homologous chromosomes separate?
(a) prophase I (b) prophase II (c) anaphase I
(d) anaphase II (e) None of these

(xix) In a DNA molecule, the bases of pyrimidine are:
(a) thymine and cytosine (b) cytosine and guanine (c) adenine and thymine
(d) thymine and guanine (e) None of these

(xx) Triassic and Jurassic periods are included in the:
(a) Palaeozoic era (b) Mesozoic era (c) Coenozoic era
(d) Proterozoic era (e) 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)** Extra attempt of any question or any part of the attempted question will not be considered.

Q.2. (a) Give an account of the mechanisms by which the living cell is believed to synthesize proteins. **(12)**
(b) Explain how carbon dioxide is transported by the blood? **(8)**

Q.3. (a) Describe the structure and functions of cell membrane. **(12)**
(b) How is the nerve impulse generated and conducted. **(8)**

Q.4. (a) Describe prophase-I of meiosis in detail with the help of labeled diagrams. **(10)**
(b) Give an account of digestion of food in mammals. **(10)**

Q.5. (a) Describe the structure and functions of Endoplasmic reticulum. **(10)**
(b) What is haemoglobin? How it carries oxygen in the blood? What happens when carbon monoxide combine with haemoglobin? **(7)**
(c) Differentiate between pinocytosis and phagocytosis. **(3)**

Q.6. (a) Give an account of Mendel's law of segregation with example. **(10)**
(b) What is vestigial organ? Presence of vestigial organs is taken as an evidence of evolution. Discuss. **(10)**

Q.7. (a) What are biogeochemical cycles? Describe the carbon cycle in detail. **(10)**
(b) Given an account of Lamarck's theory of evolution. **(10)**

Q.8. Write short notes on: **(5+5+5+5)**
(i) Natural Selection (ii) Mutation
(iii) Hormones (iv) Chromosomal aberration

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