

FEDERAL PUBLIC SERVICE COMMISSION

COMPETITIVE EXAMINATION FOR RECRUITMENT TO POSTS
IN BPS-17, UNDER THE FEDERAL GOVERNMENT, 2002.

ZOOLOGY, PAPER-I

TIME ALLOWED: THREE HOURS

MAXIMUM MARKS: 100

Note: Attempt any FIVE questions in all, including Question No.7 which is
COMPULSORY. Select two questions from each Section. All questions carry
EQUAL marks.

SECTION - A

1. (a) Describe various modes of LOCOMOTION in PROTOZOA. (6)
(b) Describe CONJUGATION in PARAMECIUM and its
significance (8)
(c) Give economic importance of SPONGES (6)
2. (a) Write down the economic importance of CORAL REEFS. (5)
(b) Describe the life history of LIVER FLUKE by giving suitable
Diagrams. (10)
(c) Explain METAMERISM and its significance in ANNELIDA. (5)
3. (a) Give the diagnostic features of ARTHROPODS. (6)
(b) Describe the adaptive modifications of FOOT in GASTROPODS. (7)
(c) Give an account of WATER VASCULAR SYSTEM IN
ECHINODERMATES. (7)

SECTION - B

4. (a) Describe the various types of SCALES in FISHES. (5)
(b) Enumerate the functions of the skin and also tell the structures
derived from it. (10)
(c) Write briefly about the POUCHED MAMMALS. (5)
5. (a) Describe the mechanism of RESPIRATION IN MAMMALS. (8)
(b) Give an account of DENTITION IN MAMMALS. (6)
(c) Write about the economic importance of birds. (6)
6. (a) Describe the structure and function of MAMMALIAN KIDNEY. (8)
(b) Write about MIGRATION in birds. (6)
(c) Snakes are useful creatures. Discuss. (6)

COMPULSORY QUESTION

7. Write only the correct answer in the Answer Book. Do not reproduce the
question.
(A) Which of the four options makes the following statements correct. Just
write the question number, and one of the serial alphabets on your Answer
Book. (10)
(1) The mode of nutrition in AMOEBA is:
(a) Holozoic (b) Saprozoic
(c) Saprophytic (d) None of these
(2) The Coelom in PLATYHELMINTHYES is:
(a) Pseudocoel (b) Haemocoel
(c) Metacoel (d) None of these

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- (3) EXCRETORY organs in earthworms are:
 (a) Nephron (b) Flame Cells
 (c) Malpighian Tubules (d) Nephridia
 (e) None of these
- (4) Foot is used as an organ of locomotion in which of the following animals:
 (a) Freshwater mussel (b) Octopus
 (c) Sepia (d) None of these
- (5) Which group of animals out of the following is DIPLOBLASTIC:
 (a) Platyhelminthes (b) Echinodermata
 (c) Coelenterata (d) None of these
- (6) Which of the following animals has the maximum mixing of oxygenated and de-oxygenated blood in the ventricle of its heart:
 (a) Fish (b) Frog
 (c) Crocodile (d) None of these
- (7) Reptiles are:
 (a) Oviparous (b) Viviparous
 (c) Ovo-viviparous (d) All of these
- (8) The urea formation in mammals takes place in:
 (a) Kidneys (b) Spleen
 (c) Liver (d) None of these
- (9) Vertebrates in which placenta is formed during the development of foetus are:
 (a) Reptiles (b) Aves
 (c) Mammals (d) None of these
- (10) Lymph most closely resembles with:
 (a) Plasma (b) interstitial fluid
 (c) blood (d) None of these
- (B) Check which of the following statements are True(T) or False(F). Simply write question number and T or F on your Answer Book. (10)
- (11) Archaeopteryx is a missing link between birds and reptiles.
 (12) Skin of frog has well-developed sweat glands.
 (13) True Coelom develops from endoderm.
 (14) Archenteron develops during blastula stage.
 (15) The Trypanosoma causes the disease called "sleeping sickness".
 (16) Snakes can listen and enjoy music.
 (17) Echidna is an egg-laying mammal.
 (18) Herbivores have more pointed teeth than carnivores.
 (19) Reptiles are warm-blooded animals.
 (20) The body-cavity in arthropods is a haemocoel.

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MAXIMUM MARKS: 100

Note: Attempt FIVE questions in all, including Question No. 8 which is **COMPULSORY**. All questions carry **EQUAL** marks.

1. (a) Define POLYPLOIDY and explain its role in the origin of new species. (15)
(b) Explain TEST CROSS and give its significance. (5)
2. (a) Describe the structure and function of PLASMA MEMBRANE. (10)
(b) Explain the factors that affect the rate of ENZYME ACTION. (5)
(c) Define INHIBITORS and give its types. (5)
3. (a) Write what you know about the theory of NATURAL SELECTION. How does it differ from MUTATION THEORY? (15)
(b) Briefly discuss the EMBRYOLOGICAL EVIDENCE of animal evolution. (5)
4. (a) Write about NITROGEN CYCLE in detail. (8)
(b) Write short notes on the following: (12)
(i) GREEN HOUSE EFFECT (ii) PARASITISM (iii) PREDATION
5. (a) What is SYNAPSE? How nerve impulse is transmitted from one NEURON to another? (8)
(b) What is FEED BACK MECHANISM with respect to HORMONES? Explain with examples. (5)
(c) Write about the transport of oxygen in man and mention the factors which affect the capacity of hemoglobin to combine with oxygen. (7)
6. Write an essay on GENETIC ENGINEERING. (20)
7. Write notes on the following: (20)
(a) CHROMOSOME MAP (b) RII-factor
(c) MITOCHONDRIA (d) FOOD WEB

COMPULSORY QUESTION

8. Write only the correct answer in the Answer Book. Do not reproduce the question.
 - (1) Many humans become ill by consuming milk products because they lack:
(a) bacteria in their intestines (b) remmin
(c) hydrochloric acid (d) Lactase
(e) None of these
 - (2) Which of the following processes cause substances to move across membranes without the expenditure of cellular energy:
(a) endocytosis (b) active transport
(c) diffusion (d) None of these
 - (3) Respiratory pigment present in muscles is called:
(a) haemoglobin (b) myoglobin
(c) haemocyanins (d) globin
(e) None of these
 - (4) Which one of the following is not a viral disease:
(a) mumps (b) small-pox
(c) cowpox (d) Tetanus
(e) None of these
 - (5) Animals obtain Carbohydrates mainly from:
(a) sucrose (b) glycogen
(c) starch (d) glucose
(e) None of these

- (6) Mesosomes are internal extensions of:
 (a) Cell Wall (b) Cell membrane
 (c) Chromatin body (d) None of these
- (7) Sugar in each nucleotide of DNA is:
 (a) deoxyglucose (b) ribose
 (c) glucose (d) deoxyribose
 (e) None of these
- (8) Species is the basic unit of:
 (a) genetics (b) Zoology
 (c) ecology (d) universe
 (e) None of these
- (9) Which one of the following is false about AIDS:
 (a) HIV (b) HAV
 (c) T-lymphocytes (d) host specific
 (e) None of these
- (10) Which statement about plastids is true:
 (a) They are power house of cell (b) They contain DNA and ribosomes
 (c) They are found in all organisms (d) They are surrounded by a single membrane
 (e) None of these
- (11) Which of the following is not found in all bacterial cells:
 (a) a nucleoid (b) capsule
 (c) cell membrane (d) ribosomes
 (e) None of these
- (12) A virion is a:
 (a) viral protein (b) viral gene
 (c) virus (d) viral lysozyme
 (e) None of these
- (13) The study of fossils and their relationship to the evolution of life on earth is called:
 (a) fossilization (b) Palaeontology
 (c) Palaeozoology (d) None of these
- (14) A connecting and supporting tissue in animal is:
 (a) muscle (b) bone
 (c) nerve (d) Connective
 (e) None of these
- (15) Interstitial fluid closely resembles to:
 (a) rain water (b) sea water
 (c) lake water (d) pond water
 (e) None of these
- (16) The amount of lactic acid in muscles increases when they are lacking in:
 (a) CO₂ (b) C₆H₁₂O₆
 (c) energy (d) oxygen
 (e) None of these
- (17) If a person eats more protein than are needed, this causes increased production of:
 (a) hormones (b) urea
 (c) lactic acid (d) CO₂
 (e) None of these
- (18) The growth of human population is most rapid in:
 (a) Asia (b) Europe
 (c) North America (d) None of these
- (19) Which type of tissue forms glands:
 (a) Connective (b) nervous
 (c) muscle (d) epithelial
 (e) None of these
- (20) Carbon combines with nitrogen in amino acid linkages to form:
 (a) ester bonds (b) peptide bonds
 (c) ionic bonds (d) None of these
