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**FEDERAL PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION FOR RECRUITMENT TO POSTS**  
**IN BPS-17, UNDER THE FEDERAL GOVERNMENT, 2005**

**ZOOLOGY, PAPER-I**

TIME ALLOWED: THREE HOURS

MAXIMUM MARKS: 100

NOTE: Attempt FIVE questions in all, including QUESTION NO.7, which is COMPULSORY. Select any two questions each from SECTION-I and SECTION-II. Give neat diagrams wherever required.

**SECTION - I**

1. (a) Write a brief account of conjugation in Protozoa. (7)  
(b) "Porifera is a group falling at just above the colonial level of organization". Comments. (7)  
(c) "Corals are distributed over a wider range, yet coral reefs are present in selected areas." Discuss. (6)
2. (a) "Parasitism leads to development of some characters and withdrawal of some other characters." Discuss the statement with reference to platyhelminthes. (7)  
(b) Write a brief account of shell in Mollusca. (6)  
(c) "Water Vascular system is the life line in Echinodermata." Comment the statement. (7)
3. Write short notes on the following:- (5 each)  
(a) Metameric segmentation (b) Respiration in Arthropoda  
(c) Pseudocoelome (d) Enterocoelomates

**SECTION - II**

4. (a) Discuss retrogressive metamorphosis with reference to Ascidians. (8)  
(b) "Amphioxus is an ideal chordate." Discuss the statement. (12)
5. (a) "Skeleton in petromyzon is at very initial stage of development." Justify the statement. (10)  
(b) "Heart gradually evolved into a more efficient pumping organ in different chordate groups." Explain the statement. (10)
6. (a) Write an essay on migration in birds, with special reference to Pakistan. (9)  
(b) Discuss the different types of eggs found in different chordate groups. (11)

**COMPULSORY QUESTION**

7. Write only the correct answer in the Answer Book. Do not reproduce the question.
  - (1) Coelome is the body cavity originating from:  
(a) Ectoderm (b) Mesoderm  
(c) Endoderm (e) None of these
  - (2) Cytopyranx is a structure present in:  
(a) Amoeba (b) Paramecium  
(c) Euglena (d) Foraminifers (e) None of these
  - (3) Gametes are the reproductive structure, produced in:  
(a) Sponges (b) Annelids  
(c) Arthropods (d) Coelenterates
  - (4) Comb plates are very specific structures of:  
(a) Coelenterate (b) Arthropoda  
(c) Ctenophore (d) None of these
  - (5) Nerve net is present in coelenterates at:  
(a) In Endodermis (b) Below the upper epidermis  
(c) In Mesoglea (d) Not present in coelenterate

**ZOOLOGY, PAPER-I**

- (6) Circulatory system in insects is:  
(a) closed type (b) open type  
(c) lymphic type (d) All of these
- (7) Silk is produced by Silkworm :  
(a) Larva (b) Adult  
(c) Pupa (d) All of these
- (8) The basic function of a flame cell is:  
(a) Excretion (b) Osmoregulation  
(c) Digestion (d) None of these
- (9) The scales in fishes are:  
(a) Ectodermal (b) Endodermal  
(c) Mesodermal (d) Different in different fishes
- (10) The neck of a camel has vertebrae:  
(a) 14 (b) 9  
(c) 7 (d) 20 (e) None of these
- (11) Spiders are Arachnids and they have legs:  
(a) 6 (b) 8  
(c) 9 (d) None of these
- (12) Gill slits in chordates are present in:  
(a) Mouth (b) Pharynx  
(c) Oesophagus (d) All of these
- (13) Birds are flying and have ovaries:  
(a) one on right side (b) Both on right and left side  
(c) one on any side (d) one on left side
- (14) Adult Echinoderm has symmetry:  
(a) Bilateral (b) Radial  
(c) Both (a) and (b) (d) None of these
- (15) The typical characters of all mammals is:  
(a) Mammary gland (b) Brain  
(c) Hair (d) All of these
- (16) Mouth in sharks is located:  
(a) Dorsal (b) Ventral  
(c) Anterior end (d) None of these
- (17) The number of ribs in frog are:  
(a) 4 (b) 6  
(c) 8 (d) None of these
- (18) Earthworm are dissected from side:  
(a) Dorsal (b) Ventral  
(c) Both (a) and (b) (d) lateral
- (19) Duck billed platypus is a:  
(a) Bird (b) Placental Mammal  
(c) Monotreme (d) Marsupial
- (20) Silver fish is a member of:  
(a) Pisces (b) Insects  
(c) Echinodermata (d) None of these

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**BOTANY, PAPER-II**

**TIME ALLOWED: THREE HOURS** **MAXIMUM MARKS: 100**

**NOTE:** Attempt **FIVE** questions in all, including **QUESTION NO.8**, which is **COMPULSORY**. All questions carry **EQUAL** marks.

1. (a) Discuss the role of light and the transformation of CO<sub>2</sub> in Photosynthesis. (8)  
 (b) Define respiration. What is meant by respiratory quotient. (4)  
 (c) What is dormancy? Describe methods of breaking dormancy. (8)
2. (a) Define ecology. Describe applications of ecology in detail. (10)  
 (b) What is plant succession? Give detailed account of process of plant succession starting in a lake. (10)
3. (a) Give an account of methods for reclamation of Waterlogged soil. (10)  
 (b) Write an essay on natural resources of Pakistan. (10)
4. (a) What is soil erosion? What are its causes? How we can control it? (10)  
 (b) Environmental Pollution is the result of Urbanization and Industrializations. Comment. (10)
5. Write notes on the following:- (20)
 

(a) Plant Hormones	(b) Vernalization and its significance
(c) Food Web	(d) Methods of Sampling vegetations
6. Describe the structure and functions of following cell organelles. (20)  
 Draw diagram where necessary:-
 

(a) Mitochondria	(b) Cell Wall	(c) Golgibodies
(d) Endoplasmic reticulum	(e) Ribosomes	
7. (a) What do you know about theory of natural selection. (5)  
 (b) What is mutation? Describe its different types? (5)  
 (c) Give an account of crossing over and Polyploidy. (10)

**COMPULSORY QUESTION**

8. Write only the correct answer in the Answer Book. Do not reproduce the question. (20)
  - (1) The membrane of vacuole is known as:
 

(a) Tonoplast	(b) Chromoplast
(c) Leucoplast	(d) None of these
  - (2) The RNA which helps in decoding of triplet codon is known as:
 

(a) r RNA	(b) t RNA
(c) m RNA	(d) None of these
  - (3) Transfer of material from higher concentration to lower concentration across semipermeable membrane is called:
 

(a) mass flow	(b) Diffusion
(c) Osmosis	(d) None of these
  - (4) Loss of water in the form of vapours from living surface of plants is termed as:
 

(a) Evaporation	(b) Sublimation
(c) Evapotranspiration	(d) None of these
  - (5) The movement of material within the plant body is known as:
 

(a) absorption	(b) ascent of sap
(c) Translocation	(d) None of these

**BOTANY, PAPER-II**

- (6) The oxygen produced during photosynthesis comes from:  
(a) air (b) water  
(c) CO<sub>2</sub> (d) ATP
- (7) The study of plant community is called:  
(a) Ecology (b) Autecology  
(c) Plant Geography (d) None of these
- (8) The bending movement of plant in response to light is known as:  
(a) Thigmotropism (b) transotropism  
(c) Phototropism (d) Chemotropism
- (9) The occurrence of vegetation in layers is known as:  
(a) Pattern (b) Stratification  
(c) Scarification (d) Physiognomy
- (10) The plants which prefer to grow in moderate habitats are called as:  
(a) Xerophytes (b) Hydrophytes  
(c) Heliophytes (d) None of these
- (11) A particular place where the organism lives is termed as:  
(a) environment (b) Nich  
(c) Habitat (d) None of these
- (12) Pioneerspecies of xerosere are:  
(a) Crustose lichens (b) Foliose lichens  
(c) Fungi (d) Grasses
- (13) The strip of vegetation planted to check the velocity of wind is called as:  
(a) Timberline (b) flag formation  
(c) Shelter belt (d) None of these
- (14) The factors which are concerned with soil are called as:  
(a) climatic factor (b) Edaphic factors  
(c) Topographic factors (d) Physiographic factors
- (15) The chromosomes are composed of:  
(a) Protein (b) DNA  
(c) Protein and DNA (d) None of these
- (16) Test cross is a cross between:  
(a) F<sub>1</sub> and F<sub>1</sub> (b) F<sub>1</sub> and F<sub>2</sub>  
(c) F<sub>1</sub> and double recessive (d) None of these
- (17) The colorless plastids are known as:  
(a) Leucoplast (b) Chloroplast  
(c) Chromoplast (d) None of these
- (18) Genes are located on:  
(a) Nucleus (b) DNA  
(c) Ribosomes (d) Chromosomes
- (19) Division of Nucleus is termed as:  
(a) cytokinesis (b) Karyokinesis  
(c) Karyoty<sub>o</sub> (d) None of these
- (20) The cell organelle on which ribosomes are present are called:  
(a) Rough ER (b) Smooth E.R.  
(c) Cytoplasm (d) None of these

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