

**Biology** (Objective)

(Group-I)

Time: 20 Minutes Marks : 17

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

- 1.1 The most recent era is: *RWP-1-24*
- (A) Paleozoic (B) Mesozoic (C) Cenozoic (D) Proterozoic
2. Monosaccharides which are rare in nature and occur in some bacteria are:
- (A) Hexoses (B) Pentoses (C) Trioses (D) Tetroses
3. An activated enzyme with a polypeptide chain and a co-factor is:
- (A) Apoenzyme (B) Holoenzyme (C) Coenzyme (D) Activator
4. Which of the following are involved in the breakdown of old organelles:
- (A) Lysosomes (B) Glyoxisomes (C) Peroxisomes (D) Ribosomes
5. HIV belongs to group of viruses called:
- (A) DNA virus (B) Pox virus (C) Retro virus (D) Bacteriophage
6. If the whole cell of bacteria is covered by flagella, the bacteria is called:
- (A) Atrichous (B) Peritrichous (C) Amphitrichous (D) Lophotrichous
7. The vector of "African sleeping sickness" is:
- (A) Mosquito (B) House fly (C) Yellow fly (D) Tsetse fly
8. The group of fungi in which sexual reproduction is not observed:
- (A) Ascomycota (B) Basidiomycota (C) Deuteromycota (D) Zygomycota
9. The rhizome in Adiantum is protected by:
- (A) Ramenta (B) Stipe (C) Fronds (D) Stomium
10. Excretory system in Arthropods is composed of:
- (A) Flame cells (B) Malpighian tubules (C) Nephridia (D) Nephrons
11. Which of the following are not included in amniotes:
- (A) Birds (B) Reptiles (C) Mammals (D) Amphibians
12. Dark reaction of photosynthesis occurs in the part of chloroplast named as:
- (A) Stroma (B) Grana (C) Inter-grana (D) Inner membrane
13. The first action spectrum was obtained by T.W.Engelman in 1883 working on:
- (A) Volvox (B) Nostoc (C) Spirogyra (D) Chlorella
14. In cockroach partly digested food is temporarily stored in:
- (A) Colon (B) Crop (C) Gizzard (D) Rectum
15. Respiratory pigment present in muscles is called:
- (A) Haemoglobin (B) Haemocyanin (C) Haemoerthrin (D) Myoglobin
16. The left systematic arch disappears in:
- (A) Birds (B) Fish (C) Mammals (D) Reptiles
17. The narrowing and hardening of arteries is called as:
- (A) Apoptosis (B) Necrosis (C) Atherosclerosis (D) Sclerosis

**Biology** (Subjective)**(GROUP-I)**

Time: 2:40 Hours

## SECTION-I

RWP-1-24

**2. Write short answers of any eight parts from the following:**

(8x2=16)

- i. What are terpenoids? Give two examples.
- ii. Draw diagrammatic representation of an enzyme – substrate reaction (Lock and Key Model)
- iii. How enzyme concentration affects the rate of enzyme action?
- iv. What are inhibitors? Give their types.
- v. Differentiate septate and non septate hyphae
- vi. Compare obligate parasites with facultative parasites.
- vii. Differentiate polyps and medusae.
- viii. How infestation is different from disinfestations?
- ix. What do you know about pinworms?
- x. Name the scales of fish.
- xi. The oxygen releases during photosynthesis comes from water, how you prove?
- xii. What is the importance of phosphorylation in energy driving reactions?

**3. Write short answers of any eight parts from the following:**

(8x2=16)

- i. What is biological method? Name its steps in order.
- ii. What is biological control? Give an example.
- iii. How outer membrane of mitochondria differs from inner membrane?
- iv. Why peroxisomes are called so?
- v. Write two characteristics of protozoa.
- vi. Give at least two examples of Dinoflagellates. Which pigments are found in them?
- vii. In which group, the giants of protist kingdom are included? Name any giant protist.
- viii. Why *pelomyxa palustris* may be the most primitive of all eukaryote-like forms?
- ix. How breathing is different from cellular respiration?
- x. What changes occur in animal during diving reflex?
- xi. What is brain haemorrhage? Give its preventive measures.
- xii. What is pericardium? Write its function.

**4. Write short answers of any six parts from the following:**

(6x2=12)

- i. How virion differs from prion?
- ii. What are plasmids? Give their role
- iii. Give two important features of Lycopsida.
- iv. Differentiate over topping and plannation.
- v. What are paraphyses? Give their function.
- vi. Compare homospority with heterospority.
- vii. Give the role of secretion in digestion.
- viii. How pepsinogen is converted into pepsin?
- ix. Differentiate herbivores and carnivores with example.

## SECTION-II

**Note Attempt any three questions. Each question carries equal marks:**

(8x3=24)

5. (a) How diseases can be controlled? Give preventive measures. (2+2=4)
- (b) Explain respiration in cockroach. Draw its labeled diagram. (2+2=4)
6. (a) Describe three main types of RNA. (4)
- (b) Discuss important features of ascomycota. (4)
7. (a) What are plastids? Discuss their types and functions. (1+1+2=4)
- (b) How digestion in Duodenum takes place? Write role of liver and pancreas. (1+3=4)
8. (a) Discuss the structure of a virion (4)
- (b) Define immunity. Discuss its types. (1+3=4)
9. (a) Describe habitat, occurrence and reproduction in Nostoc (1+1+2=4)
- (b) Sketch various steps of Krebs' cycle (2+2=4)

RWP-2-24

**Biology** (Objective)

(Group-II)

Time: 20 Minutes Marks : 17

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

- 1.1 Reserve food material in cyanobacteria is in the form of:  
(A) Starch (B) Proteins (C) Sucrose (D) Glycogen
2. Malaria spreads by :  
(A) Plasmodium (B) Female anopheles mosquito (C) Tsetse fly (D) Trypanosoma
3. Which of the following is unicellular but not included in protocista?  
(A) Kelps (B) Volvox (C) Yeast (D) Plasmodium
4. Most powerful Alkaloids are obtained from plants of family called:  
(A) Solanaceae (B) Fabaceae (C) Rosaceae (D) Poaceae
5. Sphenodon is found in :  
(A) Australia (B) Texas (C) New Zealand (D) Pakistan
6. Syrinx is an organ of voice present in:  
(A) Apes (B) Parrots (C) Snakes (D) Frogs
7. Transfer of energy from antenna complex to reaction center of Photosystem occurs by phenomenon called:  
(A) Oxidation (B) Reduction (C) Resonance (D) Hydrogenation
8. How many number of electrons would be needed at a time to reduce two moles of  $NADP^+$ ?  
(A) Two (B) One (C) Three (D) Four
9. Constipation is called by the excessive absorption of:  
(A)  $CO_2$  (B) Water (C) Food (D) Oxygen
10. If plasma proteins carry about 5%  $CO_2$  / 100 ml of blood. How much  $CO_2$  is carried by 500 ml of blood from tissue fluid to lungs?  
(A) 5 ml (B) 20 ml (C) 25 ml (D) 100 ml
11. Which layer of arteries become thick due to Atheroma?  
(A) Middle (B) Inner most (C) External (D) Any layer
12. If  $\psi_w$  (water potential) of a cell is -400 KPa and pressure potential ( $\psi_p$ ) is 800 KPa. What would be the solute potential ( $\psi_s$ ) of cell at equilibrium:  
(A) 1200 KPa (B) -400 KPa (C) -1200 KPa (D) 800 KPa
13. Which of the following element is a heavy metal?  
(A) Zinc (B) Iron (C) Copper (D) Chromium
14. One strand of DNA contains ACGT nitrogenous bases and opposite strand has TGCA. How many number of hydrogen bonds would be present between these complementary nitrogenous bases?  
(A) 08 (B) 12 (C) 10 (D) 14
15. Rate of reaction (catalysis) is inversely proportional to the:  
(A) Activation energy (B) Enzyme concentration (C) Optimum temperature (D) Optimum pH
16. If ocular lens is of 10X and objective lense is of 40X, resolution of compound microscope would be \_\_\_\_\_ of human naked eye.  
(A) 100X (B) 400X (C) 500X (D) 250,000X
17. Which of the following is an organelle of symbiotic origin?  
(A) Ribosomes (B) Mitochondria (C) Centrioles (D) Lysosomes

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**Biology** (Subjective)**(GROUP-II)**

Time: 2:40 Hours

**SECTION-I**

RWP-2-24

2. Write short answers of any eight parts from the following: (8x2=16)
- What is the difference between fibrous proteins and globular proteins?
  - What are inhibitors? Write their two types.
  - Differentiate between apoenzyme & holoenzyme.
  - The low and high temperature respectively affect an enzyme activity. How?
  - Enlist four types of asexual reproduction in fungi.
  - What is aspergillosis? Name the fungus which causes it.
  - Enlist four examples of sponges with their habitat.
  - Define polymorphism. What is the generic name of 'Portuguese man of war'?
  - Give names of any two sub-classes of mammalia.
  - What is Notochord? State its function.
  - Differentiate between catabolism and anabolism.
  - Which form of anaerobic respiration occurs in muscle cells of human during sprinting? Also represent it by equation. (8x2=16)

## 3. Write short answers of any eight parts from the following:

- How does Phyletic Lineage extend back to the common origin of all early life?
- Write down attributes of population.
- How cell cytoplasm play role in cell physiology?
- What is chemical composition of bacterial (Prokaryote) cell wall?
- How would you differentiate fungus-like protists and fungi?
- What are amoebas? Give their types
- What functions are performed by micronuclei and macronuclei in ciliates?
- Why Euglenoids are placed in Algae as well as in Protozoa?
- How does temperature affect the oxygen carrying capacity of Haemoglobin?
- How does the skin of earthworm is kept moist for the exchange of respiratory gases?
- Differentiate Antigen and Antibody.
- What is the difference between single circuit and double circuit Heart? (6x2=12)

## 4. Write short answers of any six parts from the following:

- What are the pocks? Give their cause.
- Write the difference between archaeo bacteria & eubacteria?
- Differentiate the Archegonia and Antheridia.
- What is circinate vernation? Give an example.
- What do you know about annulus and stomium?
- How can adipose tissue is formed?
- Which plants are called supermatophytes?
- What are hunger pangs? When do they begin?
- Why humans develop intestinal gas from consuming milk products?

**SECTION-II**

Note Attempt any three questions. Each question carries equal marks:

- (a) What is an organ? Discuss organ and organ system level of organization. (8x3=24)  
(b) How  $CO_2$  is transported from tissues to lungs? (2+2=4)  
(4)
- (a) What is RNA? Describe its three types. (b) Give economic losses due to fungi. (1+3=4) & (4)  
(1/2+1/2+2+1=4)
- (a) What are plastids? Give three types & explain chloroplast in detail and draw its labeled diagram. (2+2=4)  
(b) Explain role of pancreas and liver in digestion in human beings. (4)
- (a) Write detailed note on AIDS. (2+2=4)  
(b) Discuss symptoms and reasons of Leucaemia and thalassaemia. (4)
- (a) Discuss nutrition in bacteria. (1+3=4)  
(b) What is photophosphorylation? Discuss non-cyclic photophosphorylation in plants.