

2020

Time : 3 hours

Full Marks : 75

Candidates are required to give their answer in their own words as far as practicable.

Figures in the margin indicate full marks.

Answer five questions, selection two from each group and Q. No. 1 is Compulsory.

1. Choose the correct answer from the options given below:

1×15=15

(a) Who coined the term "Echinodermata"?

- (i) Ernst Haeckel (ii) Jacob Klein
(iii) Lamarck (iv) Robert Grant

(b) Respiratory organs of Starfish are:

- (i) Body wall (ii) Podia
(iii) Papulae (iv) Pedicellaria

(c) Madreporite is absent in:

- (i) Asteroidea (ii) Crinoidea
(iii) Echinoidea (iv) Ophiuroidea

(d) Avicularia is found in:

- (i) Phoronis (ii) Bugula
(iii) Asterias (iv) Sagitta

(e) In **Balanoglossus** coelom is:

- (i) Schizocoelous (ii) Pseudocoelous
 (iii) Haemocoelous (iv) Enterocoelous

(f) Nuchal skeleton of **Balanoglossus** is:

- (i) T Shaped (ii) Y Shaped
(iii) M Shaped (iv) S Shaped

(g) What is the excretory organ of **Balanoglossus** is:

- (i) Nephron (ii) Solenocyte
 (iii) Glomerulus (iv) Malpighian tubule

(h) The stable community in ecological succession is:

- (i) Pioneer (ii) Climax
 (iii) Sere (iv) Carnivores

(i) 10% Law of energy transfer in food chain was enunciated by:

- (i) Elton (ii) Lindeman
(iii) Odum (iv) Tansley

(j) Which of the following layer project Biosphere from excess cooling?

- (i) Ionosphere
(ii) Mesosphere
 (iii) Troposphere
 (iv) Ozone Layer

(k) Acid rain is due to pollution of:

- (i) O_3 and CO_2
- (ii) SO_2 and NO_2
- (iii) PAN and O_3
- (iv) Pesticides

(l) Which of the following is called Bird's Paradise?

- (i) Kanha National Park
- (ii) Keoladeo National Park
- (iii) Kaziranga National Park
- (iv) Jaldapara National Park

(m) White resinous glue used for sealing the comb is called:

- (i) Varnish
- (ii) Wax
- (iii) Nectar
- (iv) Propolis

(n) Silk consists of:

- (i) Central core of Fibroin
- (ii) Central Core of Sericin
- (iii) Mixture of sericin and Fibroin
- (iv) None of these

(o) Tryporyza incertulas is a pest of:

- (i) Wheat
- (ii) Paddy

(iii) Sugarcane

(iv) Vegetable

Group-A

2. Describe water vascular system of Asterias with suitable illustrations. 15
3. Give the characteristic feature of Phylum Hemichordata. Classify the phylum giving characteristics and suitable examples. <https://www.tmbuonline.com> 7+8=15
4. Describe the structure and affinities of Bugula. 15
5. Give an account of digestive system and mode of feeding in *Balanoglossus*. 15

Group-B

6. Define ecosystem. Describe the general organization of a pond ecosystem. 3+12=15
7. What do you mean by biogeochemical cycle? Discuss Nitrogen cycle in detail. ✓ 5+10=15
8. Write an essay of Apiculture and its present status in Bihar. 15
9. Name three important pests of wheat. Mention the life cycle and control of any two pest studied by you. 3+12=15 ✓
