Time Allowed : 2.30 Hours

Instructions : (1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.

(2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

Note : (i) Answer all the questions.

(ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.
The book ‘Process of organic evolution’ was written by:
(a) Hardy - Weinberg  (b) Hugo de Vries  
(c) Dobzhansky  (d) G.L. Stebbins

The fishes which are capable of directly breathing atmospheric air ________.
(a) carps  (b) milk fishes  
(c) murrels  (d) catfishes

The exotic fish which exhibits buccal incubation is __________.
(a) Tilapia  (b) Lates  (c) Catla  (d) Mugil

Dinitrophenol is:
(a) an antibody  (b) a chemical group reacts with immunogen  
(c) an antigen  (d) not an immunogen but reacts with pre-formed antibodies
Which one of the following is not a correct pair?

(a) Laminaria - Brown algae
(b) Enteromorpha - Green algae
(c) Gracillaria - Red algae
(d) Porphyra - Blue green algae

An example for immunosuppressive drug is __________.

(a) Anthromycin  (b) Cyclosporin  (c) Imidazole  (d) Amantidine

Weak pulse in leg is a sign of __________.

(a) peripheral vascular disease  (b) coronary artery disease  
(c) heart disorder  (d) heart failure
Each haemoglobin molecule consists of __________.

(a) 2 alpha and 1 beta chain  
(b) 1 alpha and 2 beta chains  
(c) 2 alpha and 2 beta chains  
(d) 1 alpha and 1 beta chain

HIV is a member of the sub-family __________.

(a) Rhabdovirus  
(b) Pencillia  
(c) Vaccinia  
(d) Lentivirinae

Which organism plays a vital role in pollination of trees in tropical forest?

(a) Rhinoceros beetle  
(b) Humming birds  
(c) Mimic moths  
(d) Orchid bees
Match the following:

1. Huntington’s chorea (i) Autosomal mutant allele
2. Sickle cell anemia (ii) Homozygous recessive gene
3. Agammaglobulinemia (iii) Autosomal dominant gene
4. Thalassemia (iv) Recessive gene

(a) (1) - (i) (2) - (iv) (3) - (iii) (4) - (ii)
(b) (1) - (ii) (2) - (iv) (3) - (i) (4) - (iii)
(c) (1) - (iii) (2) - (i) (3) - (iv) (4) - (ii)
(d) (1) - (iii) (2) - (i) (3) - (ii) (4) - (iv)

The first moult of Ascaris larva results in ________ larva.

(a) Hexacanth (b) Cysticercus
(c) Rhabditi form (d) Onchosphere
Assertion (A): In our country, during winter, most of the people living in New Delhi use air filter in their homes.

Reason (R): Excessive use of fossil fuel, which results in emission of hydrocarbons.

(a) (A) is correct and (R) is also correct; (R) explains (A).
(b) (A) is wrong but (R) is correct.
(c) (A) is correct and (R) is wrong.
(d) (A) is correct and (R) is also correct but (R) does not explain (A).

The ECG wave due to ventricular repolarization is __________.

(a) Q wave (b) T wave (c) P wave (d) Q, R, S waves

The reason for the ketogenesis is:
(a) Increased glucose catabolism (b) Increased protein anabolism (c) Increased fat catabolism (d) Decreased fat catabolism
PART - II/ II

Note :
(i) Answer any six of the following.
(ii) Question No. 24 is compulsory.

A man is walking for a mile. A thorn pricks his leg so suddenly he bows down. At that time he gets sudden sparking pain at his back. This is due to sudden change in the position of back body muscles. Explain it.

Mention any two advantages of solar energy.

Differentiate allopatric and sympatric species.

Which character is very essential for cultivable fishes in polyculture?

What are the advantages of CT over other imaging techniques?

What is exogenous phase in the lifecycle of Ascaris?
Draw a labelled diagram of immunoglobulin.

Name the various fields in which the science of bioinformatics is applied.

Very soon our country will be the world’s highest populous country. This alarming rise in population forces us to find new areas for food production. CMFRI suggested the conversion of mangrove forests into aquacultural areas. If so, what will be the environmental and health problems we will be facing?

PART-III / II

\[ 6 \times 3 = 18 \]

Note:
(i) Answer any six of the following.
(ii) Question No. 33 is compulsory.

What are the uses of transgenic animals?

Name the chemical alarm signals released by damaged mast cells.
27. How does light influence in pond fish culture?

28. Mention the name and symptoms of the disease characterised by increased BMR.

29. What are the functions of cerebro spinal fluid?

30. Oyster meat is nutritious - Justify.

31. What is DNA library?


33. Usage of large number of air conditioner and refrigerators can cause respiratory ailments. Explain this statement logically.
PART - IV/IV

Note: Answer all questions.

(a) We consume food for energy. The energy is used for physical growth and activities. Explain the processes present between digestion and energy formation at cells.

OR

(b) When the blood is present in the blood vessel, its fluidity must be maintained. When the blood comes out of the body, it should get clotted. When these two conditions are not maintained many abnormalities would occur in our body. Explain those abnormalities.

(a) Give the effects of global warming on plants and animals.

OR

(b) Describe the characters of any five freshwater ornamental fishes.

(a) Illustrate the mechanism by which Dolly, the sheep was born.

OR

(b) List down the symptoms of AIDS as defined by WHO.
(a) Tabulate the diseases which are spread easily in cattle.

OR

(b) Our country is one of the richest biodiversity countries. Due to industrialisation we destroy forests. It may lead to very serious consequences. Why should we conserve biodiversity? What are the strategies we can adopt?

(a) How will a doctor identify that the host body has rejected a graft?

OR

(b) Honey bee is a social insect. There are three castes present in a hive. They depend on each other. By means of life cycle explain their dependence on each other.