

2019

Full Marks - 60

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions

Part-I

1. Answer the following :

1 × 8

- a) The thin flexible and tough body cover of Euglena present beneath the plasmamembrane is known as _____.
- b) The mode of nutrition in Amoeba is known as _____ nutrition.
- c) In life cycle of Plasmodium merozoites are found in _____.
- d) The crawling movements with monopodium as like garden slug by Entamoeba is called _____ movement.
- e) Mouth part of Medusa is known as _____.
- f) Coral reef lying periphery to the shore of volcanic island are called _____.

[2]

- g) Name the larval form of *Fasciola* in its secondary host.
- h) The diseased condition caused by *Wuchereria* is called _____.

Part-II

2. Answer any **eight** of the following in two to three sentences : 1½×8

- a) What is mode of nutrition in *Euglena* ?
- b) What is the most significant features of *Amoeba* in its binary fission ?
- c) What is the product of exoerythrocytic schizogony ?
- d) Name the antibiotics used for treatment of Amoebiasis.
- e) Name the inorganic compounds by virtue of which skeletal system of sponges are made.
- f) What is metagenesis ? Describe.
- g) Write the three evolutionary body features of ctenophora resemble with coelenterata.
- h) Write the antihelminthic drug used in treatment for taeniasis.
- i) Which is the infective stage of *Ascaris* for man ?
- j) Name the insect vector responsible for transmission of elephantiasis.

[3]

Part-III

3. Answer any **eight** of the following within 75 words : 8 × 2

- a) *Euglena* is considered to be a connecting link between plant and animal kingdom. Justify.
- b) Explain the thermotaxis movement of *Amoeba*.
- c) How *Plasmodium* is different from *Monocystis* ?
- d) What is excystment and metacystic development in *Entamoeba*.
- e) What are the different modes of locomotion in protists.
- f) Describe the different types of coral reef formation.
- g) Write the most significant parasitic adaptation in *Fasciola*.
- h) What is gravid proglottid ? Write its characteristic features.
- i) Give the distinguishing features of male and female *Ascaris*.
- j) Write the *microfilaria* larval adaptation.

Part-IV

4. a) Elaborate on life cycle and pathogenicity of *Plasmodium vivax*. 6

OR

- b) Give the general characteristic features of sponges. Add a note on their canal system.

5. a) Discuss the evolutionary significance of ctenophora. 6

OR

- b) Write the different types of coral reef formation and distribution in the globe.

6. a) Write the life cycle of *Fasciola leptica*. 6

OR

- b) Discuss the disease caused due to *Taenia solium* infection and their drugs for cure.

7. a) Discuss the parasitic adaptations in *Ascaris lumbricoides*. 6

OR

- b) Describe the life cycle of *Wuchereria bancrofti*.

2021

Full Marks - 60

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions from any one section.

SECTION-A

Part-I

1. Fill in the blanks :

1 × 8

- a) The intermediate host of Malarial Parasite is ____.
- b) The water exit through a pore in sponge is called ____.
- c) Cysticercosis disease is caused by ____.
- d) ____ helminthes have pseudo body cavity.
- e) Rhabdome is found in the eyes of ____.
- f) Water vascular system is found in ____ phylum.
- g) Stem reptiles belong to the order ____.
- h) Birds are glorified ____.

[2]

Part-II

2. Answer any *eight* of the following :

1½ × 8

- a) What is exflagellation ?
- b) Write different types of Malaria and its causative organism.
- c) Write different modification of medusae.
- d) What is apolysis ?
- e) What are drones ?
- f) Define Chiastoneury.
- g) What is Potamodromy ?
- h) Write two characteristics of Cotylosuria.
- i) How endoskeleton adapted for flight in birds ?
- j) Write different mode of attachment of teeth.

Part-III

3. Answer any *eight* of the the following :

2 × 8

- a) Sycon canal system
- b) Scolex of *Taenia solium*

[3]

- c) General characters of Nemato-helminthes
- d) Torsion in Gastropoda
- e) Pearl formation
- f) Bipinnaria larva
- g) Catadromous and Anadromous fish
- h) Parental care by Mid-wife toad
- i) Flight adaptations in bird
- j) Dentition in mammal.

Part-IV

4. a) Describe life cycle of *Plasmodium vivax*. 6
OR

b) Explain polymorphism in Cnidaria.

5. a) Give an account of Metamerism in Annelida. 6
OR

b) Describe social life in insects.

[Turn Over

[4]

6. a) Describe about Osmoregulation and its significance.

6

OR

- b) Explain various adaptations for terrestrial mode of life.

7. a) Describe origin of reptiles.

6

OR

- b) Discuss early evolution of mammals.

SECTION-B

Part-I

1. Fill in the blanks :

1 × 8

- a) ____ is the functional unit of compound eyes.
- b) The trachea present in insect that serve for ____.
- c) Johnston's organ is located in ____ insect.
- d) ____ hormone cause moulting in insect.
- e) Hemelytra found in ____ order of insect.

[5]

- f) ____ species of flea can be vector of *Yersinia pestis*.

- g) ____ is the causative organism of plague.

- h) Reduviid bug is a vector for the transmission of ____ disease.

Part-II

2. Answer any *eight* of the following : $1\frac{1}{2} \times 8$

- a) What is reservoirs.
- b) Write three characters of Siphunculata.
- c) Define host-specificity.
- d) Write the cause and symptoms of Chikungunya.
- e) Write methods to control housefly.
- f) Why relapsing fever occur ?
- g) Define phthiriasis.
- h) What is chagas disease ?
- i) Write method to control Bed bugs.
- j) Define myiasis.

Part-III

3. Write short notes on any *eight* of the following : 2 × 8

- a) Vectorial capacity
- b) Siphonaptera
- c) Host-Vector relationship
- d) Viral encephalitis
- e) Leishmaniasis
- f) Typhus fever
- g) Control of human louse
- h) Vagabond's disease
- i) Control of fleas
- j) Blood-sucking bugs.

Part-IV

4. a) Discuss morphological features of insects. 6

OR

- b) Describe features of order of insects belongs to Diptera and Hemiptera.

5. a) Explain about mosquitoborne disease - Malaria. 6

OR

- b) Discuss the sandfly borne disease Visceral Leishmaniasis.

6. a) Describe about Flea-borne disease. 6

OR

- b) Explain human louse as an important vector.

7. a) Describe Bug as an insect vectors. 6

OR

- b) Explain Bed-bug as an Mechanical vector.

2021

Full Marks - 60

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions

Part-I

1. Fill in the blanks : 1 × 8
- a) *Euglena* belongs to the class ____.
 - b) The response of amoeba to gravity is called ____.
 - c) The infective stage of *Entamoeba histolytica* is ____.
 - d) ____ is the larva of Sycon.
 - e) ____ is commonly called sea Walnuts.
 - f) The primary host of *Fasciola hepatica* is ____.
 - g) Cysticercosis is caused by ____.
 - h) ____ is the viviparous nematodes.

[2]

Part-II

2. Answer any **eight** of the following :

$1\frac{1}{2} \times 8$

- What is Osmoregulation ?
- Write different types of malaria and its causative organism.
- Define circumvallation.
- What is metagenesis ?
- What is coral ? Write its different types.
- What is Manubrium ?
- Write pathogenesis of Liver rot disease.
- Write the various modification of polyp.
- What is apolysis ?
- Define Bladderworm.

Part-III

3. Answer any **eight** of the following :

2×8

- Justify euglena as an animal.
- Write about Sol-gel theory.
- Write different types of Spicules.

2021
cc-1
[3]

- Differentiate between polyp and Medusa.
- Write general characteristics of Ctenophora.
- Write short notes on Miracidium larva.
- Write different types of coral reefs.
- Write parasitic adaptations of *Fasciola hepatica*.
- Write about structure of Scolex of *Taenia solium*.
- Write sexual dimorphism in *Ascaris*.

Part-IV

4. a) Describe the life cycle of *plasmodium vivax*. 6

OR

b) Describe various canal system found in Sponge.

5. a) Describe evolutionary significance of Ctenophora. 6

OR

b) Write general characteristics of phylum cnidaria and classification upto class.

- 2021
6. a) Explain life cycle of *Taenia solium*.

6

OR

- b) Write general characteristics of phylum platyhelminthes and its classification upto class.

7. a) Discuss life cycle of *Ascaris lumbricoides*. 6

OR

- b) Describe life cycle of *Wuchereria bancrofti*.

2022

Full Marks - 60

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions from any one section.

SECTION-A

Part-I

1. Fill in the blanks :

1 × 8

- a) In *Plasmodium vivax*, signet ring stage is found in ____ Schizogony.
- b) Amphiblastula is the larva of ____.
- c) The unit of compound eyes is called ____.
- d) The long, uncoiled pleuro-visceral nerve connectives become twisted into figure of 8 called ____.
- e) Eels exhibit ____ migration.
- f) The only known case of gastric incubation in vertebrates is found in ____.

[2]

- g) Archosauria were ruling reptiles dominated in _____ era.
- h) During flight _____ muscles lowers the wing.

Part-II

2. Answer any **eight** of the following : $1\frac{1}{2} \times 8$

- What is Thigmotaxis ?
- What is Schuffner's dot ?
- Define metagenesis ?
- What is Onchosphere ?
- Write distinct general characters of Annelida.
- What is Parthenogenesis ?
- What is osphradium ?
- Define anadromous migration of fish.
- Write about stem reptiles.
- What is Symsacrum ?

[3]

Part-III

3. Write notes on any **eight** of the following : 2×8

- Ookinete stage
- Polymorphism in Cnidaria
- Parasitic adaptations in helminthes
- Metamerism
- Pearl formation
- General characters of Echinozoa
- Osmoregulation
- Primates
- Dentition in mammal
- Doliolaria.

Part-IV

4. a) Describe canal system in Porifera.

6

OR

b) Explain life cycle of *Plasmodium*.

[4]

5. a) Describe torsion in Gastropods. 6

OR

b) Explain larval forms of Echinodermata.

6. a) Discuss migration in fishes. 6

OR

b) Give an account of parental care in Amphibia.

7. a) Describe terrestrial adaptations in reptiles. 6

OR

b) Discuss flight adaptations in birds.

SECTION-B

Part-I

1. Fill in the blanks :

1 × 8

a) The infective stage of *Plasmodium vivax* is ____.

b) The Piercing and sucking mouth parts are found in ____ insects.

[5]

c) ____ order flies are called true flies.

d) ____ hormone is responsible for moulting in insect.

e) ____ is the causative organism of Chikungunya.

f) Fleas belong to ____ order of insects.

g) Trench fever is caused by ____.

h) ____ chemical commonly used to control bed bugs.

Part-II

2. Answer any **eight** of the following : 1½ × 8

a) Define vectorial capacity.

b) Write three distinct characters of order Hemiptera.

c) What is host specificity?

d) How sand flies are insect vectors?

e) Write methods to control mosquitoes.

f) Why phlebotomus fever occur?

[6]

- g) Write cause and symptoms of Dengue.
- h) What is the cause of Relapsing fever?
- i) What is vagabond's disease?
- j) How chaga's disease occur?

Part-III

3. Write notes on any *eight* of the following : 2×8

- a) Antennae of insects
- b) Host-vector relationship
- c) Siphunculata
- d) Malaria
- e) Viral encephalitis
- f) Cutaneous Leishmaniasis
- g) Myiasis
- h) Typhus fever
- i) Phthiriasis
- j) Blood sucking bugs.

[7]

Part-IV

4. a) Describe mouth parts of insects with reference to its feeding habit. 6

OR

- b) Give classification of insects upto orders.

5. a) Describe about mosquito-borne disease-Filaria. 6

OR

- b) Discuss the sandfly borne disease Visceral leishmaniasis.

6. a) Explain human louse as an important insect vector. 6

OR

- b) Discuss plague as a Flea borne disease.

7. a) Describe Bug as an insect vector. 6

OR

- b) Explain control and preventive measures for Bug.

2024

Full Marks - 100

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions

Part-I

1. Fill in the blanks : 1 × 10
- a) Asexual life cycle of plasmodium is completed in _____ host.
 - b) Temporary contact of two protozoans with nuclear exchange is known as _____.
 - c) Nutritive zooid is known as _____.
 - d) Metamerism seen in annelida is _____ type.
 - e) Redia larva emerges from _____ larva.
 - f) Disease caused by Ascaris is _____.
 - g) Sterile Female of honey bee colony is known as _____.

[2]

- h) _____ Hormone triggers moulting in insects.
- i) Gills in mollusca are known as _____.
- j) Locomotory organs of Echinodermata is _____.

Part-II

2. Write short notes on the following : 2×9

- a) Syngamy
- b) Pseudocoelom
- c) Labelled diagram of cercaria larva
- d) Ascariasis
- e) Torsion
- f) Book lungs
- g) Tube feet
- h) Polychaeta
- i) Apposition image.

Part-III

3. Write notes on any **eight** of the following : 5×8

- a) Medusa.
- b) Compound eye of insects

[3]

- c) Mechanism of torsion in gastropods
- d) Madreporite and its functions
- e) General characters of Nematelminthes
- f) Pathogenicity of *F. hepatica*
- g) Metanephridia in annelida
- h) Evolutionary significance of trochophore
- i) Metagenesis in obelia
- j) General characters of onychophora.

Part-IV

4. Answer any **four** of the following : 8×4

- a) Mention the different types of locomotory organs in protista. Explain briefly how they bring about locomotion.
- b) Describe life cycle and pathogenicity of *A. lumbricoids*.

- c) Discuss in detail about different kinds of respiration within different classes of molluscs.
- d) Describe general characters of annelida and its classification upto class.
- e) Describe water vascular system in echinoderms and its significance.

2024

Full Marks - 100

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions

Part-I

1. Fill in the blanks : 1 × 10

- a) Mode of nutrition in Amoeba is _____.
- b) In the star fish water vascular system is derived from _____.
- c) _____ caste of bees visit flowers.
- d) Opening of radial canal into spongocoel are called as _____.
- e) Earthworm belongs to _____ class of Annelida.
- f) Alternation of generation as seen in obelia is termed as _____.
- g) Primary host of Fasciola is _____.

[2]

- h) The larval form of annelida is _____ .
- i) Rhagon type of canal system is found in _____ .
- j) Aquatic respiration in moluscs is performed by _____ .

Part-II

2. Write short notes on the following : 2×9

- a) Metamerism
- b) Binary Fission
- c) Blastostyle
- d) Book gills
- e) Detorsion
- f) Uses of coral reefs
- g) Microfilariae
- h) Nematodiasis
- i) Acricularia larva.

[3]

Part-III

3. Answer any *eight* of the following : 5×8

- a) Flagella in protozoa.
- b) Structure of coral skeleton.
- c) Describe migration of larvae of ascaris through human host.
- d) Classification of phylum coelenterata or Cnidaria.
- e) Apoposition image formation by compound eye.
- f) Morphological adaptations of helminth parasites.
- g) Write short note on Metanephridia.
- h) Describe tracheal respiration in Arthropods.
- i) Describe Madreporite and its functions.

Part-IV

4. Answer any *four* of the following : 8×4

- a) Give an illustrated account of life cycle of *Plasmodium vivax*.

- b) Write an essay on polymorphism in Cnidaria.
- c) Describe social life in Honey Bee.
- d) Describe different larval forms of Echinodermata.
- e) Describe general characters of phylum Nematelminthes and classify it up to classes.

L-482-1200



2024

Full Marks - 100

Time - 3 hours

The figures in the right-hand margin indicate marks
Answer *all* questions

Part-I

1. Answer the following :

1 × 10

- a) Retrogressive Metamorphosis occurs in _____ phylum.
- b) Notochord is confined to proboscis region in _____ phylum.
- c) The connecting link between reptiles and birds is _____.
- d) Limbless amphibians belong to _____ order.
- e) Migration of fishes from salt water to fresh water is known as _____.
- f) The earliest fossils of tetrapoda are known as _____.

[2]

- g) Wings of birds are depressed or lowered by _____ muscles.
- h) _____ zoo geographical realm is known as realm of birds.
- i) Balanoglossus belongs to _____ phylum.
- j) Dipnoi are commonly known as _____.

Part-II

2. Answer the following : 2×9

- a) List the three fundamental characters of Chordates.
- b) What are protochordates ?
- c) What is catadromous migration in Fishes ?
- d) What are accessory respiratory organs of Fishes ?
- e) Mention the characters in which *Sphenodon* differs from reptiles.
- f) What is poisonous apparatus in Snakes ?
- g) Describe adaptive radiation.
- h) What is wheel organ ?

[3]

- i) Write a short note on order monotremata.
(Mention two identifying characters with example)

Part-III

3. Write short notes on any *eight* of the following : 5×8

- a) Dipleurula concept
- b) Urochordata
- c) Parental care in Fishes
- d) General characters of Pisces
- e) Affinities of *Sphenodon*
- f) Continental drift theory
- g) Archaeopteryx
- h) Order-Urodela
- i) Monotremes
- j) Migratory birds.

Part-IV

8 × 4

4. Answer any *four* of the following :

- a) Describe retrogressive metamorphosis in Urochordata in detail.
- b) Describe general characters of reptile and classify upto orders with suitable examples.
- c) Write a note on Flight adaptations in birds.
- d) Describe different accessory respiratory organs in fishes and their significance.
- e) Discuss adaptive radiation in mammals with reference to locomotory appendages.

2024

Full Marks - 100

Time - 3 hours

The figures in the right-hand margin indicate marks

Answer *all* questions

Part-I

1. Answer the following :

1 × 10

ନିମ୍ନୋକ୍ତ ଗୁଡ଼ିକର ଉତ୍ତର ପ୍ରଦାନ କର :

a) Which of the following is a non-biodegradable pollutant ?

i) Nitric Acid

ii) Smoke

iii) DDT

iv) Noise.

ନିମ୍ନଲିଖିତ ମଧ୍ୟରୁ କେଉଁଟି ଏକ ଅଣଜୈବ ବିଘଟନୀୟ ପ୍ରଦୂଷକ ?

i) ନାଇଟ୍ରିକ ଏସିଡ୍

ii) ସ୍ମୋକ୍

iii) ଡିଡିଟି

iv) ନଏଜ୍ ।

b) Eutrophication results in decrease of _____ in water.

ଇଉଟ୍ରୋଫିକେସନ ଯୋଗୁଁ ଜଳରେ _____ କମ୍ ହୋଇଥାଏ ।

[2]

- ୩ c) Photochemical smog comprises mainly _____
 ଷ i) CO_2 ii) SO_2
 ଇ iii) NO_2 iv) O_3 .
 ଫୋଟୋକେମିକାଲ ସ୍ମଗ୍ ମୁଖ୍ୟତଃ ଗଠିତ _____ ।
 i) କାରବନ୍ ଡାଇଅକ୍ସାଇଡ୍
 ii) ସଲଫର ଡାଇଅକ୍ସାଇଡ୍
 iii) ନାଇଟ୍ରୋଜେନ୍ ଡାଇଅକ୍ସାଇଡ୍
 iv) ଓଜୋନ୍ ।
- d) Radiation pollution causes :
 i) Cancer ii) TB
 iii) Typhoid iv) Heart Attack.
 ନିମ୍ନଲିଖିତ ମଧ୍ୟରୁ କେଉଁ ରୋଗଟି ବିକିରଣ ପ୍ରଦୂଷଣ ଯୋଗୁଁ ହୋଇଥାଏ ?
 i) କ୍ୟାନସର ii) ଟିବି
 iii) ଟାଇଫଏଡ୍ iv) ହାର୍ଟଆଟାକ୍ ।
- e) Which mineral is used in making Steel ?
 i) Bauxite ii) Manganese
 iii) Copper iv) Mica.
 କେଉଁ ଖଣିଜ ପଦାର୍ଥଟି ଲୁହାର ପ୍ରସ୍ତୁତରେ ବ୍ୟବହୃତ ହୋଇଥାଏ ?
 i) ବକ୍ସାଇଟ୍ ii) କପର
 iii) ମାଙ୍ଗାନିଜ୍ iv) ମାଇକା ।

L-576

[3]

- f) Wind and Geothermal energy are of :
 i) Non-renewable type
 ii) Conventional type
 iii) Renewable type
 iv) Both (i) and (ii).
 ପବନ ଏବଂ ଭୂତାପକ ଶକ୍ତି ହେଉଛି :
 i) ନବୀକରଣ ଅଯୋଗ୍ୟ ii) ପାରମ୍ପରିକ
 iii) ନବୀକରଣ ଯୋଗ୍ୟ iv) ଉଭୟ (i) and (ii) ।
- g) The Wild Life Protection Act was enacted in the year _____.
 ବନ୍ୟ ପ୍ରାଣୀ ସଂରକ୍ଷଣ ଆଇନ _____ ମସିହାରେ ଗୃହୀତ ହୋଇଥିଲା ।
- h) During Bhopal Gas Tragedy which gas was released ?
 i) CO_2
 ii) Methyl Isocyanide (MIC)
 iii) Sulphuric Acid
 iv) SO_2 .
 ଭୋପାଲ ଗ୍ୟାସ ଦୁର୍ଘଟଣା ସମୟରେ କେଉଁ ଗ୍ୟାସ୍ ନିର୍ଗତ ହୋଇଥିଲା ?
 i) କାରବନ୍ ଡାଇଅକ୍ସାଇଡ୍ ii) ମିଥାଇଲ ଆଇସୋସାୟାନାଟ୍
 iii) ସଲଫ୍ୟୁରିକ୍ ଏସିଡ୍ iv) ସଲଫର ଡାଇଅକ୍ସାଇଡ୍ ।

L-478

[Turn Over

[4]

- i) ODRA stands for _____
ODRAର ସମ୍ପୂର୍ଣ୍ଣ ରୂପ ଲେଖ ।
- j) The District Disaster Management Authority (DDMA) is headed by :
i) MP
ii) MLA
iii) Collector
iv) Chairman of local body.
ଜିଲ୍ଲା ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା ପ୍ରାଧିକରଣ ମୁଖ୍ୟ ହେଉଛନ୍ତି :
i) ସଂସଦ ii) ବିଧାୟକ
iii) କଲ୍ଲେକ୍ଟର iv) ଲୋକାଳ ବୃତ୍ତିର ଚେୟାରମ୍ୟାନ ।

Part-II

2. Answer the following within 50 words each : 2 × 9
ନିମ୍ନୋକ୍ତ ଗୁଡ଼ିକର ଉତ୍ତର ପ୍ରତ୍ୟେକ ୫୦ ଶବ୍ଦ ମଧ୍ୟରେ ପ୍ରଦାନ କର :
- a) What are the common effects of Soil Pollution on Agriculture ?
କୃଷି ଉପରେ ମୃତ୍ତିକା ପ୍ରଦୂଷଣର ସାଧାରଣ ପ୍ରଭାବ କ'ଣ ?
- b) Define Radiation pollution and give an example.
ବିକିରଣ ପ୍ରଦୂଷଣକୁ ବ୍ୟାଖ୍ୟା କର ଏବଂ ଏକ ଉଦାହରଣ ଦିଅ ।
- c) What is the impact of Noise Pollution on Human health ?
ମାନବ ସ୍ୱାସ୍ଥ୍ୟ ଉପରେ ଶବ୍ଦ ପ୍ରଦୂଷଣର ପ୍ରଭାବ କ'ଣ ?

[5]

- d) What is a Biodiversity Hotspot ?
ଜୈବ ବିବିଧତା ହଟସ୍ପଟ୍ କ'ଣ ?
- e) Define a Natural Disaster with two examples.
ଦୁର୍ଘଟି ଉଦାହରଣ ସହିତ ପ୍ରାକୃତିକ ବିପର୍ଯ୍ୟୟକୁ ବ୍ୟାଖ୍ୟା କର ।
- f) What is Desertification ?
ମରୁଭୂମିକରଣ କ'ଣ ?
- g) Mention two responsibilities of NDRF in Disaster Management.
ବିପର୍ଯ୍ୟୟ ପରିଚାଳନାରେ NDRFର ଦୁଇଟି ଦାୟିତ୍ୱ ଉଲ୍ଲେଖ କର ।
- h) What is Acid Rain ?
ଅମ୍ଳ ବର୍ଷା କ'ଣ ?
- i) What is meant by "In Situ" Conservation Biodiversity ?
ଜୈବ ବିବିଧତାର 'ଇନ୍‌ସିଟୁ' ସଂରକ୍ଷଣ ଅର୍ଥ କ'ଣ ?

Part-III

3. Answer any *eight* of the following within 250 words each : 5 × 8
ନିମ୍ନୋକ୍ତ ସେ ଲୌଣସି ଆଠଟିର ଉତ୍ତର ପ୍ରତ୍ୟେକ ୨୫୦ ଶବ୍ଦ ମଧ୍ୟରେ ପ୍ରଦାନ କର :
- a) Discuss the causes and effects of Air Pollution.
ବାୟୁ ପ୍ରଦୂଷଣର କାରଣ ଏବଂ ପ୍ରଭାବ ବିଷୟରେ ଆଲୋଚନା କର ।

[6]

- b) Explain Marine Pollution with its causes and preventive measures.
 ସାମୁଦ୍ରିକ ପ୍ରଦୂଷଣର କାରଣ ଏବଂ ପ୍ରତିଷେଧକ ବ୍ୟବସ୍ଥା ବ୍ୟାଖ୍ୟା କର ।
- c) Describe Soil Pollution and its control measures.
 ମୃତ୍ତିକା ପ୍ରଦୂଷଣ ଏବଂ ଏହାର ନିୟନ୍ତ୍ରଣ ପଦକ୍ଷେପ ଗୁଡ଼ିକ ବର୍ଣ୍ଣନା କର ।
- d) Explain the difference between Natural and Man-made disasters with examples.
 ଉଦାହରଣ ସହିତ ପ୍ରାକୃତିକ ଏବଂ ମନୁଷ୍ୟକୃତ ବିପର୍ଯ୍ୟୟ ମଧ୍ୟରେ ପାର୍ଥକ୍ୟ ବ୍ୟାଖ୍ୟା କର ।
- e) Elaborate on the role of NDMA and SDMA in Disaster Management.
 ବିପର୍ଯ୍ୟୟ ପରିଚାଳନାରେ NDMA ଏବଂ SDMA ର ଭୂମିକା ବର୍ଣ୍ଣନା କର ।
- f) What are the key components of pre-disaster and post-disaster preparedness?
 ବିପର୍ଯ୍ୟୟ ପୂର୍ବ ଏବଂ ବିପର୍ଯ୍ୟୟ ପରେରା ପ୍ରସ୍ତୁତିରେ ମୁଖ୍ୟ ଉପାଦାନଗୁଡ଼ିକ କ'ଣ ?

[7]

- g) How does vulnerability assessment help in Disaster Management?
 ବିପର୍ଯ୍ୟୟ ପରିଚାଳନାରେ ସହଜ ଆକ୍ରମଣୀୟତା (vulnerability assessment) ମୂଲ୍ୟାଙ୍କନ କିପରି ସାହାଯ୍ୟ କରେ ?
- h) What role does the Early warning system play during disasters?
 ବିପର୍ଯ୍ୟୟ ସମୟରେ ପ୍ରାରମ୍ଭିକ ସୂଚନାବଳୀ ସିଷ୍ଟମ କେଉଁ ଭୂମିକା ଗ୍ରହଣ କରେ ?
- i) Outline the provisions of Water Act.
 ଜଳ ଅଧିନିୟମର ବ୍ୟବସ୍ଥାଗୁଡ଼ିକୁ ବର୍ଣ୍ଣନା କର ।
- j) What is the difference between renewable and non-renewable energy resources?
 ଅକ୍ଷୟ ଏବଂ ଅକ୍ଷୟ ଶକ୍ତି ଉତ୍ପାଦନ ମଧ୍ୟରେ ପାର୍ଥକ୍ୟ କ'ଣ ?

Part-IV

4. Answer any *four* of the following within 800 words each :
 ନିମ୍ନୋକ୍ତ ଯେ କୌଣସି ଚାରୋଟିର ଉତ୍ତର ପ୍ରତ୍ୟେକ ୮୦୦ ଶବ୍ଦ ମଧ୍ୟରେ ପ୍ରଦାନ କର :
- a) Discuss Water Pollution in detail, focusing on its sources, impacts, and mitigation strategies.
 ଜଳ ପ୍ରଦୂଷଣର ଉତ୍ସ, ପ୍ରଭାବ ଏବଂ ପ୍ରତିରୋଧ କୌଶଳ ଉପରେ ଧ୍ୟାନ ଦେଇ ବିସ୍ତୃତ ଭାବରେ ଆଲୋଚନା କର ।

- b) Discuss the use, over-exploitation, and environmental impact of forest resources with case studies.

କେସ୍ ଷ୍ଟଡି ସହିତ ଅରଣ୍ୟ ସମ୍ବଳର ବ୍ୟବହାର, ଅତ୍ୟଧିକ ଶୋଷଣ ଏବଂ ପରିବେଶ ଉପରେ ଏହାର ପ୍ରଭାବ ଆଲୋଚନା କର ।

- c) Discuss the role of community participation for Flood and Cyclone.

ବନ୍ୟା ଏବଂ ଘୂର୍ଣ୍ଣବଳୟ ସମୟରେ ସାମୁହିକ ଅଂଶ ଗ୍ରହଣର ଭୂମିକା ସବିଶେଷ ଆଲୋଚନା କର ।

- d) Briefly explain Wild Life Protection Act and Forest Conservation Act in promoting sustainable ecosystems.

ବନ୍ୟଜନ୍ତୁ ସୁରକ୍ଷା ଆଇନ ଏବଂ ଜଙ୍ଗଲ ସଂରକ୍ଷଣ ଆଇନ କିପରି ଭାବରେ ଧାରଣୀୟ ପରିସଂସ୍ଥାକୁ ପ୍ରୋତ୍ସାହିତ କରେ ତାହା ସଂକ୍ଷେପରେ ବର୍ଣ୍ଣନା କର ।

- e) What are the key features of the Environment Protection Act. How do they help in Pollution Control ?

ପରିବେଶ ସୁରକ୍ଷା ଆଇନର ମୁଖ୍ୟ ବୈଶିଷ୍ଟ୍ୟ ଗୁଡ଼ିକ କ'ଣ ? ତାହା ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣରେ କିପରି ସାହାଯ୍ୟ କରନ୍ତି ?

2025

ZOOLOGY

Full Marks : 100

Time : 3 hours

Answer all questions

The figures in the right-hand margin indicate marks

PART-I

1. Answer *all* questions : 1×10

(a) _____ nutrition is found in protozoa that feed specifically on the faecal matter of other organisms.

(b) _____ are specialized cells in sponges which function to create water currents and filter food particles from the water.

(Turn Over)

(c) _____ is a phenomenon where diploid (2n) sexual and diploid (2n) asexual generations alternate each other cyclically to complete the life cycle of a sexually reproducing individual.

(d) The _____ tissue, a mesenchymal layer occupies the entire space between the outer body wall and the endoderm of the gut in Platyhelminthes.

(e) Man acquires infection when the viable egg of *Ascaris lumbricoides* containing second stage _____ larva is swallowed accidentally or along with contaminated food and drinks.

(f) In leeches, the mesoderm splits and forms _____ tissue which is excretory in nature.

(g) Great majority of insects breathe air by means of an elaborate and most efficient gas exchange system made of branching elastic air tubes called the _____ system.

(h) The main body cavity of Onychophorans is a _____, a blood-filled space and not a true coelom like in annelids.

(i) Which class of phylum Echinodermata there is no pedicellariae, dermal branchine, ambulacral grooves, intestine and anus.

(j) The neck of each polian vesicle in Asteroidea is provided with a pair of small, spherical, yellowish and glandular bodies attached to the inner wall of the ring canal, called _____ bodies.

(4)

PART-II

2. Write short notes on the following : 2 x 9

- (a) Binary fission in Protozoa
- (b) General characteristics of Cnidaria
- (c) Distinguish between polyp and medusa
- (d) General characteristics of Nemathelminthes
- (e) Pathogenicity of migrating larvae of *Ascaris lumbricoides*
- (f) Distinguish between schizocoelom and enterocoelom
- (g) Mosaic vision in Arthropods

HUG-C2-Min-ZOOL-I

(Continued)

(5)

(h) General characteristics of Mollusca

- (i) Phylogenetic significance of trochophore larva

PART-III

3. Write notes on any *eight* of the following : 5 x 8

- (a) Asexual reproduction in Protozoa
- (b) Canal system in Sycon
- (c) Coral reefs and their formation
- (d) Classification of Platyhelminthes
- (e) Larval stages of *Fasciola hepatica*
- (f) Evolution of metamerism
- (g) Social structure in honey bees

I-HUG-C2-Min-ZOOL-I

(Turn Over)

(6)

- (h) Ctenidial respiration in Mollusca
- (i) Larval stages in Asteroidea
- (j) General characteristics of phylum Echinodermata.

PART-IV

4. Answer any *four* of the following : 8 × 4

- (a) Give a brief account on life cycle of *Plasmodium vivax*.
- (b) Write an essay on parasitic adaptations in helminthes.
- (c) Give an account of excretory organs and physiology of excretion in Annelida.

(7)

- (d) Discuss in detail the different modes of metamorphosis in Insects.
- (e) Give an illustrated account of mechanism of torsion and detorsion in Gastropoda.

2025

ZOOLOGY

Full Marks : 100

Time : 3 hours

Answer all questions

The figures in the right-hand margin indicate marks

SECTION — A

1. Fill in the blanks : 1 × 10

(a) Which class of phylum protozoa has tentacles for food capturing ?

(b) Protozoa consume solid food, similar to animals is known as _____ nutrition.

(Turn Over)

(2)

- (c) The polyps of stony corals sit in cup-shaped depressions in the skeleton known as _____.
- (d) Platyhelminthes belonging to class _____ are primarily ectoparasites that live on the external surfaces of fish.
- (e) The second stage of _____ larva of *Ascaris lumbricoides* is capable of infecting the host.
- (f) The respiratory pigment of Arthropods is _____.
- (g) Who proposed the 'Locomotion Theory' to explain the origin of metamerism in annelids in 1964 ?
- (h) _____ are the moveable, amoeboid, dark pigment cells which form a sheath

(3)

to separate one ommatidium from the other so that they remain as independent units.

- (i) The shell of Mollusca is composed of _____ protein.
- (j) Which class of phylum Echinodermata specialized masticatory apparatus called Aristotle's Lantern is used for scraping and masticating algae from rocks.

SECTION - B

2. Write short notes on the following : 2 × 9

- (a) General characteristics of protozoa
- (b) Types of coral reefs
- (c) Evolutionary significance of Ctenophora

(4)

- (d) General characteristics of Platyhelminthes
- (e) Pathogenic effects of adult *Ascaris lumbricoides*
- (f) Nuptial flight in honey bees
- (g) General characteristics of Onychophora
- (h) Torsion in Gastropoda
- (i) Evolutionary significance of trochophore larva.

SECTION – C

3. Write notes on any *eight* of the following :

5 × 8

- (a) Asexual life cycle of *Plasmodium vivax*
- (b) Canal system in sponges

(5)

- (c) Polymorphism in Cnidaria
- (d) General characteristics and classification up to classes of Nematelminthes
- (e) Parasitic adaptations in helminthes
- (f) Evolution of coelom
- (g) Metamorphosis in insects
- (h) Ctenidial respiration in Mollusca
- (i) Larval stages in class Asteroidea
- (j) General characters of onychophora.

SECTION – D

4. Answer any *four* of the following : 8 × 4

- (a) Discuss different types of reproduction in phylum Protozoa.

- (b) Give a detail account of metagenesis in *Obelia* and its biological significance.
 - (c) Give an illustrated account of life cycle in *Fasciola hepatica*.
 - (d) Write an essay on modes of excretion in Annelida.
 - (e) Give a detailed account of water-vascular system in Echinoderms.
-

2025

ZOOLOGY

Full Marks : 100

Time : 3 hours

Answer all questions

The figures in the right-hand margin indicate marks

PART-I

1. Fill in the blanks : 1 × 10

(a) The body of Ascidians is covered by a tunic or test made of cellulose-like polysaccharide called _____.

(b) _____ larva is a conceptual model based on the shared features of all echinoderm larvae, not a larva that is directly observed in nature.

(2)

- (e) The buccal funnel in _____ is sucking and shows horny teeth.
- (f) The swim bladder in bony fishes is a sac-like outgrowth arising from the dorsal wall of the _____.
- (g) In the order _____ of class Amphibia the eyes of the animals are small and covered by skin, hence called "blind worms".
- (h) _____ having box-like exoskeleton are assumed to be the direct descendants of primitive cotylosaurs.
- (i) The poison glands in snakes are modified superior labial or _____ glands.
- (j) When some of the birds disperse to a short or long distance for safety and food, it is called _____ migration.

(Continued)

(3)

- (i) Type of locomotion in mammals in which only the tips of toes touch the ground is known as _____ locomotion.
- (j) _____ in 1939, postulated the climate and evolution theory pertaining to distribution of animals.

PART-II

2. Answer the following :

2 × 9

- (a) State the features of Cephalochordata.
- (b) Explain the Echinoderm theory of origin of chordates.
- (c) Write the general characteristics of Agnatha.
- (d) Explain nest building as a mode of parental care in fishes.

(Turn Over)

(4)

- (e) State the evolutionary significance of Dipnoi.
- (f) Write the general characteristics of reptiles.
- (g) Justify *Archaeopteryx* as a connecting link.
- (h) Explain plantigrade locomotion citing suitable example.
- (i) What is plate tectonics ? State its causes.

PART-III

3. Write notes on any *eight* of the following:

5 × 8

- (a) Outline classification of Chordata.
- (b) Retrogressive metamorphosis in Urochordata.

(5)

- (c) Classification of Chondrichthyes up to order.
- (d) Arborescent organ and labyrinthine organ in fishes.
- (e) Origin of Tetrapoda.
- (f) Affinities of *Sphenodon*.
- (g) Classify Aves up to order.
- (h) General characters of Mammals.
- (i) Zoogeographical realms.
- (j) Anatomical flight adaptations in birds.

PART-IV

4. Answer any *four* of the following : 8 × 4

- (a) Give an account of the larval forms in protochordates.

- (b) Give an illustrated account of migration in fishes.
- (c) Write an essay on parental care in Amphibia.
- (d) Describe the poison apparatus and biting mechanism in snakes.
- (e) Give an account of the affinities of Prototheria.