

CBCS (Major)

2019

ZOOLOGY

(Honours)

Paper : ZOO-HC-1016

(Theory)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct answer (any seven) : $1 \times 7 = 7$

(a) Which of the following belongs to
Anthozoa?

(i) Aurelia

(ii) Fungia

(iii) Stercularia

(iv) Dugesia

(b) Which of the following does not have any alimentary canal?

- (i) *Taenia*
- (ii) Frog
- (iii) Earthworm
- (iv) *Ascaris*

(c) The infective stage of *Entamoeba histolytica* is

- (i) sporozoite
- (ii) minuta form
- (iii) mature cyst
- (iv) trophic form

(d) Classification of phylum Porifera mainly based on

- (i) canal system
- (ii) spicules
- (iii) shape of choanocytes
- (iv) archaeocytes

(e) Animals devoid of respiratory, excretory and circulatory organs are

- (i) liver fluke
- (ii) tapeworms
- (iii) threadworms
- (iv) sponges

(f) In flatworms, the excretory organs are

- (i) archaeocytes
- (ii) solenocytes
- (iii) nephrons
- (iv) nephridia

(g) *Entamoeba histolytica* differs from *Amoeba proteus* due to absence of

- (i) contractile vacuole
- (ii) pseudopodia
- (iii) binary fission
- (iv) multiple fission

(h) Secondary host of *Taenia solium* is

- (i) cow
- (ii) man
- (iii) sheep
- (iv) pig

(i) The body of sponges is mainly composed of

- (i) spongin fibres
- (ii) mesoglea
- (iii) spicules
- (iv) nematoblasts

2. Match the following Column—I with Column—II (any four) : $2 \times 4 = 8$

- (a)
- | Column—I | Column—II |
|-----------------|-----------------------|
| (i) Coller cell | (1) Amphiblastula |
| (ii) Sycon | (2) Glass rope sponge |
| (iii) Hyalonema | (3) Storage cells |
| (iv) Theocytes | (4) Choanocytes |

- (b)
- | Column—I | Column—II |
|-------------------|-----------------|
| (i) Cilia | (1) Flagella |
| (ii) Minuta form | (2) Plasmodium |
| (iii) Signet ring | (3) Entamoeba |
| (iv) Euglena | (4) Paramoecium |

- (c)
- | Column—I | Column—II |
|-------------------------|---------------------|
| (i) Ctenophora | (1) Limnea |
| (ii) Obelia | (2) Gammule |
| (iii) Fasciola | (3) Medusa |
| (iv) Freshwater sponges | (4) Swimming plates |

- (d)
- | Column—I | Column—II |
|------------------|----------------------------|
| (i) Euglena | (1) Medusa |
| (ii) Ctenophores | (2) Offense and defense |
| (iii) Obelia | (3) Photosynthetic protist |
| (iv) Dactylozoid | (4) Hermaphrodite |

- (e)
- | Column—I | Column—II |
|-----------------|------------------------|
| (i) Anthozoa | (1) Radial or biradial |
| (ii) Hydrozoa | (2) Medusoid |
| (iii) Scyphozoa | (3) Polypoid |
| (iv) Cnidaria | (4) Pennatula |

- (f)
- | Column—I | Column—II |
|-----------------|------------------------------------|
| (i) Statocyst | (1) Coral formation |
| (ii) Ctenophora | (2) Skeleton of a solitary coral |
| (iii) Corallite | (3) Sense organ |
| (iv) Millepora | (4) Triploblastic origin of tissue |

3. Answer any three from the following questions : 5×3=15

(a) Classify the phylum Nematelminthes with general characters up to class and give examples.

(b) Write about the evolutionary significance of Ctenophora.

(c) Discuss about the different types of locomotory organs in Protista. Add a note on their significance.

(d) Write about the pathogenicity of *Wuchereria bancrofti*.

(e) Discuss about the different types of spicules of sponges with necessary diagram.

4. Answer any *three* from the following : $10 \times 3 = 30$

(a) Discuss the life history of *Plasmodium vivax* with necessary diagrams. Add a note on its pathogenicity. $8+2=10$

(b) Describe the canal system in Porifera with necessary illustrations. 10

(c) Write an essay on the evolution of symmetry and segmentation of Metazoa with necessary illustrations. 10

(d) Discuss the life cycle of *Taenia solium* with necessary diagrams. 10

(7)

(e) Write short notes on any *two* from the following : 5×2=10

(i) Parasitic adaptation in helminths

(ii) Metagenesis in obelia

(iii) Corals and coral reefs

(f) Write an essay on polymorphism in Cnidaria. 10

Total number of printed pages-8

3 (Sem-1/CBCS) ZOO HC 1

2022

ZOOLOGY

(Honours)

Paper : ZOO-HC-1016

**(Non-Chordates-I : Protista to
Pseudocoelomates)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

1. Choose the correct answer : **(any seven)**
1×7=7

(a) Euglena belongs to class

- (i) Zoomastigophora
- (ii) Mastigophora
- (iii) Actinopoda
- (iv) Phytomastigophora

Contd.

(b) Flagellated cell in sponges are called

- (i) Pinacocytes
- (ii) Choanocytes
- (iii) Porocytes
- (iv) Thesocytes

(c) Defence structure in Cnidaria is called

- (i) Blastostyles
- (ii) Gonozoids
- (iii) Nematocysts
- (iv) Nectocalyx

(d) The infective stage to primary host of *Fasciola* is

- (i) Miracidium
- (ii) Sporocyst
- (iii) Metacercaria
- (iv) Cercaria

(e) Beroë is the example of

- (i) Porifera
- (ii) Ctenophora
- (iii) Cnidaria
- (iv) Platyhelminthes

(f) In Protista the division of parent organism into several daughter individuals is by

- (i) Plasmotomy
- (ii) Budding
- (iii) Multiple fission
- (iv) Binary fission

(g) Elephantiasis is transmitted by

- (i) Mosquito
- (ii) Housefly
- (iii) Bedbug
- (iv) Fruitfly

(h) Infective stage of *Ascaris* to man is

- (i) fertilized egg prior to development
- (ii) embryonated eggs
- (iii) larva after third moult
- (iv) larva after fourth moult

(i) Polymorphism is the phenomenon found in the class

- (i) Anthozoa
- (ii) Scyphozoa
- (iii) Hydrozoa
- (iv) Cubozoa

- (j) Cuticle of *Ascaris* is adapted for
- (i) respiration
 - (ii) defence from host
 - (iii) locomotion
 - (iv) reproduction
- (k) Intermediate host in the life cycle of *Fasciola hepatica* is
- (i) Pig
 - (ii) Snail
 - (iii) Crab
 - (iv) Rat flea
- (l) Metridium is commonly known as
- (i) Sea fur
 - (ii) Sea pen
 - (iii) Sea anemone
 - (iv) Sea fan

2. Match the following **Column-I** with **Column-II** : (any four) 2×4=8

(a)	Column-I	Column-II
(i)	Euspongia	(i) Amoeba
(ii)	Pseudopodia	(ii) Planula larva
(iii)	Plasmodium	(iii) Bath Sponge
(iv)	Cnidaria	(iv) Schizogony

(b)	Column-I	Column-II
(i)	Hydrozoa	(i) Six ray Spicule
(ii)	Pinacoderm	(ii) Cestoidea
(iii)	Hexactinellida	(iii) Polymorphism
(iv)	Anaerobic respiration	(iv) Scypha

(c)	Column-I	Column-II
(i)	Gorgonia	(i) Pennatula
(ii)	Alcyonium	(ii) Sea fan
(iii)	Euplectella	(iii) Dead man's finger
(iv)	Sea pen	(iv) Venus's flower basket

(d)	Column-I	Column-II
(i)	Paramecium	(i) Parenchymula
(ii)	Muscular Pharynx	(ii) Cnidaria
(iii)	Diploblastic	(iii) Filter feeder
(iv)	Porifera	(iv) Aschelminthes

(e)	Column-I	Column-II
(i)	Microfilaria	(i) Obelia
(ii)	Comb Jelly	(ii) Trematoda
(iii)	Polyp	(iii) Ctenophora
(iv)	Fasciola	(iv) Elephantiasis

- (c) What is amoebiasis? Describe the life history and pathogenesis of the organism causing amoebiasis.

1+5+4=10

- (d) Describe evolution of symmetry and segmentation of Metazoa.

5+5=10

- (e) What is a coral reef? Mention the mechanism of formation and types of coral reef with significance.

1+3+4+2=10

- (f) Describe the life cycle and pathogenicity of *Wuchereria bancrofti* with schematic representation.

6+4=10

- (g) What are the important characters of class Cestoda? Write in brief the symptoms, treatment and prevention of *Taeniosis*.

4+2+2+2=10

- (h) Write six distinctive characters of Porifera. Classify the phylum Porifera mentioning *three* characters of each class with example.

3+7=10

CBCS (HONS)
2019

ZOOLOGY

(Honours)

Paper : ZOO-HC-1026

(Principles of Ecology)

(Theory)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct answer : 1×7=7

(a) Which is the first process in ecological succession?

(i) Nudation

(ii) Migration

(iii) Ecesis

(iv) Aggregation

(b) Which is not the characteristic of a population?

(i) Natality

(ii) Mortality

(iii) Stratification

(iv) Sex ratio

(c) The ratio between energy flow at different points in a food chain is

- (i) ecological capacity
- (ii) ecological efficiency
- (iii) ecological potential
- (iv) ecological assimilation

(d) Which of the following is a 'k'-selected species?

- (i) Fungus
- (ii) Human
- (iii) Grass
- (iv) Beetle

(e) The structural and functional unit of ecology is

- (i) biome
- (ii) ecosystem
- (iii) biosphere
- (iv) All of the above

(f) In addition to their role in ecosystem, the value of wildlife is also found in

- (i) education
- (ii) recreation
- (iii) aesthetics
- (iv) All of the above

(g) The ecological study of individual organism or species is called

- (i) autecology
- (ii) community ecology
- (iii) synecology
- (iv) population ecology

2. Write short notes on the following : $2 \times 4 = 8$

- (a) Laws of limiting factors
- (b) Gause's competitive exclusion principle
- (c) Density-dependent population regulation
- (d) Detritus food chain

3. Write on/Answer any three of the following :

$5 \times 3 = 15$

- (a) The strategies associated with 'r'- and 'k'-selected species
- (b) The role of ecology in wildlife conservation
- (c) Compare and contrast between exponential and logistic growth.
- (d) Concepts and utilities of life tables in population ecology
- (e) Lotka-Volterra equation for competition and predation

4. Elaborate on the different group attributes of a population. 10

Or

Discuss the theories pertaining to climax community. 10

5. Elaborate with an example, the concept of ecological succession. 10

Or

Describe the process of nitrogen cycle. 10

6. What is a food chain? What are its basic types and forms? Highlight one example explaining the mode of energy flow in an ecosystem. 2+5+3=10

Or

Write short notes on the following : 5+5=10

(a) Survivorship curves

(b) Age and sex ratio

Total number of printed pages-7

3 (Sem-1/CBCS) ZOO HC 2

2021

(Held in 2022)

ZOOLOGY

(Honours)

Paper : ZOO-HC-1026

(Principles of Ecology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : $1 \times 7 = 7$

(a) _____ is a series of changes that occur in a community over time after disturbances.

- (i) Community succession
- (ii) Ecological succession
- (iii) Population succession
- (iv) Tertiary succession

Contd.

(b) As per the competitive exclusion principle, no two species can occupy the same

(i) range

(ii) territory

(iii) niche

(iv) habitat

(c) Resource partitioning is best described by which of the following statements ?

(i) Slight variation in niche allows closely related species to co-exist.

(ii) Two species can co-evolve and occupy the same niche.

(iii) Species diversity is maintained by switching between prey species.

(iv) All of the above

(d) An animal with bright colouration is most likely a

(i) predator

(ii) poisonous

(iii) competitor

(iv) prey

(e) _____ is when two or more species live in close association.

(i) Predation

(ii) Competition

(iii) Symbiosis

(iv) All of the above

(f) Science that deals with the relationships between living organisms with their physical environment and with each other is called

- (i) biology
- (ii) environmental science
- (iii) ecology
- (iv) All of the above

(g) The term 'ecosystem' was proposed by

- (i) A. G. Tansley
- (ii) E. P. Odum
- (iii) Karl Mobius
- (iv) G. F. Gause

Write short notes on the following :

(any four)

$2 \times 4 = 8$

(a) Ecological succession

(b) Food web

(c) Ecotone

(d) Carrying capacity

(e) Shelford's law of tolerance

(f) Ecological pyramid

3. Answer the following : **(any three)**

$5 \times 3 = 15$

(a) Lotka-Volterra equation

(b) r-and K-selection

(c) Types of food chains

(d) Human modified ecosystem

(e) Wildlife conservation : *Ex-situ*

4. Elaborate on the laws of limiting factors with appropriate examples. 10

Or

Distinguish between unitary and modular populations. Elaborate with one example each on life tables and fecundity tables.

$$5 + (2\frac{1}{2} + 2\frac{1}{2}) = 10$$

5. Discuss the concept of population regulation with special reference to density-dependent factors. 10

Or

What do you understand by vertical stratification ? Explain with examples the concepts of species richness, dominance, diversity and abundance. $2 + (2 + 2 + 2 + 2) = 10$

6. Write short notes on : 5+5=10

(a) Nitrogen cycle

(b) Ecological pyramids

Or

Discuss the theories pertaining to climax community. Add a note on exponential growth of a population.

6+4=10

Total number of printed pages-7

3 (Sem-1/CBCS) ZOO HC 2

2022

ZOOLOGY

(Honours)

Paper : ZOO-HC-1026

(Principles of Ecology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : **(any seven)**
1×7=7

(a) An 'ecotone' is _____.

- (i) transition area
- (ii) site of interaction of two different biological communities
- (iii) shared boundary of two or more ecosystems
- (iv) All of the above

Contd.

- (b) A set of ecosystems is referred to as
- (i) biome
 - (ii) hydrosphere
 - (iii) community
 - (iv) cline
- (c) Which of the following is NOT a feature of *r*-selected species ?
- (i) Quick reproduction
 - (ii) Low survival rate of progenies
 - (iii) Large litter size
 - (iv) Paternal care
- (d) The final stable community in ecological succession is
- (i) climax
 - (ii) sere
 - (iii) pioneers
 - (iv) carnivores
- (e) Which of the following is NOT a gaseous biogeochemical cycle in ecosystems ?
- (i) Carbon
 - (ii) Nitrogen
 - (iii) Sulphur
 - (iv) Phosphorous

- (f) The pyramid of biomass is inverted in
- (i) forest ecosystem
 - (ii) grassland ecosystem
 - (iii) tundra
 - (iv) freshwater ecosystem
- (g) The concept of ecological pyramid was first proposed by
- (i) Odum
 - (ii) Charles Elton
 - (iii) A. G. Tansley
 - (iv) Ernst Haeckel
- (h) _____ is the ratio of energy flow at different points of a food chain.
- (i) Carrying capacity
 - (ii) Ecological efficiency
 - (iii) Birth rate
 - (iv) Food web
- (i) Energy flow in an ecosystem is
- (i) always bidirectional
 - (ii) never unidirectional
 - (iii) non-directional
 - (iv) always unidirectional

(j) Identify the correct statement.

- (i) Every component of food chain forms trophic level.
- (ii) Food web is an interrelation between different food chains.
- (iii) Food chains are used to understand energy flow.
- (iv) All of the above

(k) Which of the following defines the study of the characteristics and parameters of a population ?

- (i) Demography
- (ii) Mortality
- (iii) Natality
- (iv) Population density

(l) Which of the following structures is observed in a diminishing population ?

- (i) Upright
- (ii) Histogram
- (iii) Bell-shaped
- (iv) Urn-shaped

2. Write briefly on : **(any four)** 2×4=8

- (a) *r*-selection
- (b) Natality
- (c) Synecology
- (d) Limiting factors
- (e) Ecological efficiency
- (f) Gause's competitive exclusion
- (g) Species dominance
- (h) Edge effect

3. Write short notes on : **(any three)** 5×3=15

- (a) Climax community
- (b) Energy flow in ecosystem
- (c) Life tables and survivorship curves
- (d) Food web
- (e) Nitrogen cycle
- (f) In-situ wildlife conservation

(g) Exponential population growth

(h) Carrying capacity

4. Answer elaborately : **(any three)** $10 \times 3 = 30$

(a) What do you understand by population density? Explain with an example. Add a note on fecundity tables highlighting the importance in population ecology.

(b) Discuss with examples the characteristics of a community.

(c) Compare and contrast between grazing and detritus food chains. Discuss with an example on Y-shaped food chain.

(d) Discuss the Lotka-Volterra equation for competition and predation. Highlight the characteristics of K-selection strategy.

(e) Describe the concept of ecological succession with a suitable example.

(f) What is ex-situ conservation? Write briefly the management practices for wildlife conservation.

- (g) Discuss the density-independent factors of population regulation.
- (h) What do you understand by a limiting factor? Explain the laws of limiting factors. Add a note on Shelford's law of tolerance citing suitable examples.
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Total No. of printed pages = 6

3 (Sem-1) ZOO-HG/RC-1

Answer
C.B.C.S (Major)
2019

ZOOLOGY

(Honours Generic / Regular)

Theory Paper : ZOO-HG-1016 / ZOO-RC-1016

(Animal Diversity)

Full Marks – 60

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer either in English or in Assamese.

ইংৰাজী অথবা অসমীয়াত উত্তৰ কৰা।

1. Choose the correct answer : 1×7=7

শুদ্ধ উত্তৰটো বাচি উলিওৱা :

(a) Which cells in a sponge are primarily responsible for trapping and removing food particles from circulating water ?

ভলত দিয়া কোনটো কোষে বন্ধী প্ৰাণীৰ ক্ষেত্ৰত খাদ্য গ্ৰহণ আৰু বৰ্জনত সহায় কৰে ?

(i) Choanocytes

(ii) Mesoglea cell

(iii) Porocytes

(iv) Epidermal cell

[Turn over

(b) Which of the following exhibits bioluminescence?

তলত দিয়া কোনটো প্রাণীয়ে bioluminescence দেখুৱায়

(i) Plasmodium

(ii) Trypanosoma

(iii) Ceratium

(iv) Balantidium

(c) Which of the following parasites lives alone and not in groups in the human intestine?

তলত দিয়া কোনটো পৰজীৱীয়ে মানুহৰ অন্ত্ৰত অকলে থাকে?

(i) Plasmodium

(ii) Fasciola

(iii) Taenia

(iv) Entamoeba

(d) Which zooid is generally mobile?

কোনটো zooid সাধাৰণতে চলনযুক্ত হয়?

(i) Polyps

(ii) Medusa

(iii) Both of these (দুয়োটিই)

(iv) None of these (এটাও নহয়)

(e) Which vertebrates class has hair and feeds young with milk ?

তলত দিয়া কোনটো মেৰুদণ্ডী প্ৰাণীৰ শ্ৰেণীৰ লোম থাকে আৰু কেচুৱাক গাখীৰ খুৱাই ?

- (i) Mammalia (স্তন্যপায়ী)
- (ii) Amphibia (উভচৰ)
- (iii) Reptilia (সৰীসৃপ)
- (iv) Aves (পক্ষী)

(f) The three types of mammals are
তিনিবিধ স্তন্যপায়ী প্ৰাণী হ'ল

- (i) Marsupials, Echidnas, Platypus
- (ii) Marsupials, Monotremes, Humans
- (iii) Marsupials, Monotremes, Placental
- (iv) Kangaroos, Possums, Wallabies

(g) Which freshwater fish maintains osmo-regulation by

তলত দিয়া কোনটোৰে অলৱণীয় পানীৰ মাছে আসৃতি নিয়ন্ত্ৰণ কৰে

- (i) taking both water and salt from the environment

লৱণ আৰু পানী দুয়োটা গ্ৰহণৰ দ্বাৰা

(ii) continuously taking water and eliminate excess of salt'

অনববতে পানী গ্ৰহণ আৰু লৱন বৰ্জনৰ দ্বাৰা

(iii) eliminating excess of water and taking up salts from the environment

অতিৰিক্ত পানী বৰ্জন আৰু পৰিবেশৰ পৰা লৱণ গ্ৰহণ কৰি

(iv) eliminating both salt and water into the environment ?

পানী আৰু লৱণ দুয়োটা বৰ্জনৰ দ্বাৰা

2. Write short answers to the following questions :
4×2=8

তলৰ প্ৰশ্নসমূহৰ চমু উত্তৰ দিয়া :

(a) What is the function of canal system in porifera ?

ৰন্ধীপ্ৰাণীৰ নলী তন্ত্ৰৰ কাৰ্য্য কি ?

(b) Write the salient characters of Cnidaria.

Cnidaria পৰ্বৰ মুখ্য চৰিত্ৰসমূহ চমুকৈ বৰ্ণনা কৰা।

(c) Write the salient characters of Amphibia.

উভচৰ প্ৰাণীৰ মুখ্য চৰিত্ৰসমূহ চমুকৈ বৰ্ণনা কৰা।

(d) Write the salient characters of Aves.

পক্ষীৰ মুখ্য চৰিত্ৰসমূহ চমুকৈ বৰ্ণনা কৰা।

3. Answer any *three* of the following questions :
5×3=15

তলত দিয়া যি কোনো তিনিটাৰ উত্তৰ লিখা :

(a) What are the different modes of locomotion in protozoa? Describe briefly with suitable diagrams. 2+3=5

এককোষী প্রাণীৰ চলনাংগসমূহ কি কি? চিত্ৰৰ সহায়ত চমুকৈ বৰ্ণনা কৰা।

(b) Describe the various classes of porifera with characters. 5

বহুকী প্রাণীৰ শ্ৰেণীসমূহ উপযুক্ত চৰিত্ৰৰ সহায়ত বৰ্ণনা কৰা।

(c) What is the meaning of mosaic vision in arthropods? Describe with suitable diagram. 2+3=5

সন্ধীপদী প্রাণীৰ মোজেইক দৃষ্টি বুলিলে কি বুজা? চিত্ৰৰ সহায়ত বুজাই লিখা।

(d) Describe the mechanism of osmoregulation in fresh water fishes. 5

অলবণীয় পানীৰ মাছৰ আসৃতি নিয়ন্ত্ৰণ প্ৰক্ৰিয়া বুজাই লিখা।

(e) Describe the general characters of Protochordata. 5

আদ্যপৃষ্ঠ প্রাণীৰ সাধাৰণ চৰিত্ৰসমূহ বৰ্ণনা কৰা।

4. Answer any three of the following questions : $10 \times 3 = 30$

তলত দিয়া যি কোনো তিনিটাৰ উত্তৰ লিখা :

(a) Describe the canal system in sycon with suitable diagram. 10

চাইকনৰ নলী সংবহন তন্ত্ৰৰ বিশদ বিৱৰণ ছবিৰ সহায়ত লিখা।

(b) Describe the life history of *Taenia solium* with suitable diagram. $7+3=10$

ফিটা পেলুৰ জীৱন বৃত্তান্ত ছবিৰ সহায়ত বৰ্ণনা কৰা।

(c) Describe the various stages of Metamorphosis in insect with suitable example. $5+5=10$

পতঙ্গৰ ৰূপান্তৰৰ বিভিন্ন স্তৰসমূহ চিত্ৰৰ সহায়ত বৰ্ণনা কৰা।

(d) Describe water vascular system in Asteroidea. 10

এষ্টেৰ'ইডিয়া প্ৰাণী সংবহন তন্ত্ৰৰ বৰ্ণনা কৰা।

(e) Describe the process of Metamerism in Annelida. 10

বলৰী প্ৰাণীৰ বলয় সৃষ্টি প্ৰণালী বিশদভাৱে বৰ্ণনা কৰা।