

Total No. of Printed Pages—3

**4 SEM TDC ZOOH (CBCS) C 8**

**2 0 2 2**

( June/July )

**ZOOLOGY**

( Core )

Paper : C-8

**( Comparative Anatomy of Vertebrates )**

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Fill in the blanks of the following :  $1 \times 5 = 5$

- (a) Horn is a derivative of \_\_\_\_\_.
- (b) Teeth are absent in \_\_\_\_\_.
- (c) Cutaneous respiration is found in \_\_\_\_\_.
- (d) \_\_\_\_\_ pairs of cranial nerves are found in fishes.
- (e) Urinary bladder is absent in \_\_\_\_\_.

2. Prepare notes of any two of the following :

5×2=10

(a) Succession of kidney in mammals

(b) Types of uteri in mammals

(c) Visual receptors in man

3. Discuss the derivatives of integument in mammals.

5

Or

Discuss the functions of integument.

4. Discuss the types of dentition in different groups of animals.

6

5. Write about the accessory respiratory organs in fish.

8

Or

Compare and contrast the pectoral girdle of bird and mammal.

6. Enlist the similarities and dissimilarities of brain in Amphibia and Mammalia with labelled diagram. Add a brief note on cranial nerves in mammals.

8+3=11

( 3 )

Or

✓ Write the comparative account on the alimentary canal of man with suitable diagram. Add a brief note on digestive gland in fishes.

8+3=11

7. Compare the heart of reptiles and mammals or reptiles and birds with suitable illustrations.

8

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**4 SEM TDC ZOOH (CBCS) C 10**

**2 0 2 2**

( June/July )

**ZOOLOGY**

( Core )

Paper : C-10

**( Biochemistry of Metabolic Process )**

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Fill in the blanks of the following : 1×5=5

(a) The net gain of ATP during the conversion of one glucose molecule to pyruvate is \_\_\_\_ ATP molecules.

(b) The breakdown of \_\_\_\_ is often coupled with the metabolic reactions of biosynthesis and breakdown.

(c) \_\_\_\_ nos. of ATPs are formed during complete oxidation of a palmitate molecule.

( 2 )

(d) The process of conversion of amino acids to alpha-keto acids is called \_\_\_\_\_.

(e) In electron transport, electrons ultimately pass to \_\_\_\_\_.

2. Explain precisely on any two of the following : 4×2=8

(a) Definition of coupled reaction with example

(b) Pyruvate dehydrogenase complex

(c) ATP as energy currency of cell

(d) Inhibitors of respiratory chain

3. Write short notes on any two of the following : 4×2=8

(a) Malate—aspertate shuttle

~~(b)~~ Gluconeogenesis

~~(c)~~ Oxidative deamination

(d) ATP synthase

4. What is TCA cycle? Describe briefly the reactions of TCA cycle with its energetics. 1+7=8

Or

Describe the pentose phosphate pathway of carbohydrate metabolism and write its significance.

6+2=8

22P/1285

( Continued )

( 3 )

5. What is Beta oxidation? Describe the mechanism of Beta oxidation of fatty acid. 2+6=8

Or

$$16 + 8 + 4$$

What is ketogenesis? Describe the reaction pathway of ketogenesis. 2+6=8

6. Describe the process of urea biosynthesis and write the significance of the urea cycle. How is urea cycle linked with TCA cycle? 4+2+2=8

Or

What is transamination? Describe the mechanism of transamination and its significance. 2+6=8

7. What is ETC? Explain the structural components ETC in mitochondria. 2+6=8

Or

Distinguish oxidative phosphorylation and substrate-level phosphorylation. Write about the Chemi-osmotic theory. 3+5=8

$$16 + 8 + 5 = \text{***}$$

$$\begin{array}{r} 13 \\ \hline 29 \end{array}$$

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**4 & 6 SEM TDC VT (CBCS)  
SEC 4.1/6.1**

**2022**

( June/July )

[ Skill Enhancement Course ]

**VERMICOMPOST TECHNOLOGY**

Paper : SEC 4.1/6.1

Full Marks : 40

Pass Marks : 16

Time : 2 hours

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

1. Choose the correct answer : 1×4=4

- (a) The chemical used for protecting vermi-bed from ants is Chloramphenicol / DDT / Chlorpyridophosphate.
- (b) Vermicompost is an inorganic fertilizer / synthetic fertilizer / organic manure.
- (c) Usually nitrogen, phosphorus and calcium / zink, aluminium and iron / carbon, potassium and nickel are found in earthworm cast.

( 2 )

(d) *Perionyx excavatus* / *Eudrilus eugeniae* / *Pheretima posthuma* is not used for vermicomposting technique.

2. Write notes on any four of the following :

6×4=24

~~(a)~~ Role of earthworm in agriculture

~~(b)~~ Objectives of organic farming

~~(c)~~ Nutrients in vermicompost

(d) Diversity of earthworm in Assam and their key to identifications

~~(e)~~ Enemies and sickness of earthworm

3. How would you prepare a vermi-bed for large-scale production? Write details of harvest, transport and storage of the products. Also write on commercial advantages of the products from this project.

2+7+3=12

Or

Differentiate between :

6×2=12

(a) Vermicompost and inorganic fertilizers

(b) Vermi wash and vermin

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4 & 6 SEM TDC VT (CBCS)

22P—1800/1103

SEC 4.1/6.1

2023,02,2

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**4 SEM TDC GE4T (CBCS) 4**

**2022**

( June/July )

**BOTANY**

( Generic Elective )

Paper : GE-4

( **Plant Ecology and Taxonomy** )

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. খালী ঠাই পূৰ কৰা : 1×5=5

Fill in the blanks :

(a) 'ইক'লজি' শব্দটো \_\_\_\_\_ আগবঢ়াইছিল।

The term 'ecology' was proposed by \_\_\_\_\_.

(b) ফচফ'ৰাচ চক্ৰ হ'ল \_\_\_\_\_ প্ৰকাৰৰ জৈৱ ভূ-বাসায়নিক  
চক্ৰৰ এটা উদাহৰণ।

Phosphorus cycle is an example of \_\_\_\_\_  
type of bio-geochemical cycle.

( 2 )

(c) \_\_\_\_\_ য়ে উদ্ভিদৰ যৌন অঙ্গৰ ওপৰত ভিত্তি কৰি শ্ৰেণী-বিভাজন আগবঢ়াইছিল।

\_\_\_\_\_ proposed the classification of plants based on sex organs.

(d) কলচি উদ্ভিদ মেঘালয়ত লাভ কৰা এটা \_\_\_\_\_ উদ্ভিদৰ উদাহৰণ।

Pitcher plant is an example of \_\_\_\_\_ species of Meghalaya.

(e) হিউমাচ সদায় মাটিৰ \_\_\_\_\_ তৰপত সৃষ্টি হয়।

Humus is always formed at the \_\_\_\_\_ layer of the soil.

2. তলৰ যি কোনো চাৰিটাৰ ওপৰত চমুকৈ লিখা :  $2\frac{1}{2} \times 4 = 10$

Write on any *four* of the following in short :

(a) সীমিত কাৰকসমূহ  
Limiting factors

(b) ক্লাইমেক্স সম্প্ৰদায় / চৰম সম্প্ৰদায়  
Climax community

(c) দ্বিপদ নামাকৰণৰ প্ৰক্ৰিয়া  
Binomial system of nomenclature

(d) মাটিৰ উপাদানসমূহ  
Components of soil

- ✓(e) মৰুজ উদ্ভিদৰ বাহ্যিক অভিযোজন  
Morphological adaptation of xerophytes
- ✓(f) আই. চি. এন.-ৰ মূল তত্ত্ব  
Principles of ICN

3. তলত দিয়া (a) অথবা (b) ৰ বহুলাই টোকা লিখা :  $8 \times 2 = 16$

Write explanatory notes on either (a) or (b) of the following :

✓(a) (i) ছেলফ'ৰ্ডৰ সহনশীলতা নীতি  
Shelford's law of tolerance

✓(ii) টেক্স'ন'মিক হায়াৰ্ছি  
Taxonomic hierarchy

(b) (i) বেছাম আৰু হুকাৰৰ বৰ্গীকৰণ  
Bentham and Hooker's  
classification

(ii) সংখ্যাৰ পিৰামিড  
Pyramids of number

4. স্থানিক প্রজাতিৰ সংজ্ঞা দিয়া। স্থানিকতাৰ কাৰণসমূহ লিখা।  
গোত্রৰ সৈতে অসমত লাভ কৰা তিনিজোৰা স্থানিক উদ্ভিদ  
প্রজাতিৰ নাম লিখা।  $2+5+3=10$

Define endemic species. Write the causes of  
endemism. Name three endemic plant  
species with family found in Assam.

( 4 )

5. হাৰবেৰিয়াম কি? উদ্ভিদৰ শ্ৰেণী-বিভাজনত ইয়াৰ গুৰুত্ব সম্পৰ্কে লিখা। 2+10=12

What is herbarium? Write its role in plant taxonomy.

অথবা / Or

তলত দিয়াসমূহৰ বহলাই টোকা লিখা : 6×2=12

Write explanatory notes on the following :

(a) বগীকৰণৰ কৃত্ৰিম আৰু প্ৰাকৃতিক পদ্ধতিৰ পাৰ্থক্যসমূহ

Differences between artificial and natural system of classification

(b) উদ্ভিদৰ চিনাক্তকৰণৰ কোষীয় সাক্ষ্যসমূহ

Taxonomic evidences of cytology in identification

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10 + 16 + 5 + 3.

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**4 SEM TDC ZOOH (CBCS) C 9**

**2 0 2 2**

( June/July )

**ZOOLOGY**

( Core )

Paper : C-9

**( Animal Physiology : Life Sustaining Systems )**

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Fill in the blanks with appropriate words :  $1 \times 5 = 5$

(a) Renin helps in digestion of \_\_\_\_.

(b)  $\alpha$ -units of haemoglobin are composed of  
\_\_\_\_ of amino acids.

(c) The basic functional unit of kidney is  
\_\_\_\_\_.

(d) \_\_\_\_\_ prevents the process of clotting of  
blood.

(e) Major portion of  $\text{CO}_2$  is transported as  
\_\_\_\_\_ in human body.

2. Write briefly on any *two* of the following :  $4 \times 2 = 8$

(a) Carbon monoxide poisoning

(b) Tubular reabsorption

(c) Cardiac cycle

(d) Regulation of heartbeat

3. Answer any *two* of the following :  $4 \times 2 = 8$

(a) Write a note on hormonal control of gastrointestinal tract.

(b) Write about the different components of blood and their functions.

(c) Write about the regulation of acid-base balance.

Or

What do you mean by absorption? Describe the process of absorption of carbohydrate and proteins.

$2+3+3=8$

4. Describe about the oxygen dissociation curves and factors influencing it.  $4+4=8$

Or

Describe the mechanism of  $O_2$  and  $CO_2$  transport by blood. What do you mean by respiratory pigment?

$2+2$   
 $6+2=8$