

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-V

(Cell Biology)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

1. What is an eukaryotic cell? Give a comparative account of the structures of prokaryotic cell and eukaryotic cell. 2+5=7

Or

Discuss different ways in which molecules are transported across the cell membrane. 7

2. Write down the structure, composition and functions of ribosomes. 7

Or

Define endocytosis. Discuss different types of endocytosis with diagrams. 2+5=7

3. Write down the ways in which mitochondria help in the process of cell respiration. 7

Or

Write notes on microfilaments and microtubules. 3½+3½=7

4. Discuss how different molecules mediate cell-cell adhesion. 7

Or

Describe the structure and functions of nucleolus. 7

5. What is cancer? Describe different types of cancer. 7

Or

Write down different stages of cell cycle with diagrams. 7

Subject Code : **V**/ZOO (v)

Booklet No. **A**

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Booklet No. B

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V/zoo (v)

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(5th Semester)

ZOOLOGY

Paper : ZL-V

(Cell Biology)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. 70S ribosome is made up of

- (a) 40S and 30S subunits ()
- (b) 50S and 30S subunits ()
- (c) 60S and 40S subunits ()
- (d) 20S and 40S subunits ()

(2)

2. Golgi complex was described for the first time by

- (a) Robert W. ()
- (b) C. Nageli ()
- (c) Camillo Golgi ()
- (d) de Duve ()

3. The enzymes responsible for instability of lysosomal membrane are

- (a) labilizers ()
- (b) stabilizers ()
- (c) nucleoses ()
- (d) proteases ()

4. Osteoma is tumor of the

- (a) bones ()
- (b) connective tissue ()
- (c) blood ()
- (d) lymph nodes ()

(3)

5. Meiosis is a/an

- (a) direct division ()
- (b) indirect division ()
- (c) reduction division ()
- (d) multiplication division ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following in not more than
5 to 8 sentences each : 3×5=15

1. Carcinogens

(5)

2. Phagocytosis

(6)

3. Cell's suicide bag

V/ZOO (v)/143

(7)

4. Karyotype

(8)

5. Fluid mosaic model

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VI

(**Animal Physiology**)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

1. What do you mean by digestion and absorption of food? Write an account on the mechanism of digestion of proteins. 2+5=7

Or

Define internal and external respirations.
Describe the mechanism of lung respiration.

2+5=7

G16/144a

(Turn Over)

2. What is cardiac cycle? Explain the process of cardiac cycle with suitable illustration. 1+6=7

Or

Write a detailed account of ABO blood grouping system. 7

3. What is micturition? Write an account of nervous control of micturition. 1+6=7

Or

Define the term osmoregulation. Write a detailed account of osmoregulatory process in terrestrial vertebrates. 1+6=7

4. Describe the mechanism of muscle contraction. 7

Or

What do you mean by muscle fatigue? Write a note on the types of muscle contractions. 1+6=7

5. Mention the different types of neuron. Write an account of resting potential and action potential of a neuron. 2+5=7

Or

What are neurotransmitters? Mention the major neurotransmitters and describe the process of synaptic transmission. 1+6=7

G16—350/144a

V/Zoo (vi)

Subject Code : **V**/ Zoo (vi)

Booklet No. **A**

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V / Zoo (vi)

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(5th Semester)

ZOOLOGY

Paper : ZL-VI

(Animal Physiology)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Parietal cells of gastric gland secrete

(a) hydrochloric acid ()

(b) pepsinogen ()

(c) mucous ()

(d) amylase ()

(2)

2. Total amino acid composition of single haemoglobin molecule is

(a) 575 ()

(b) 745 ()

(c) 475 ()

(d) 574 ()

3. The main excretory product of marine invertebrates and freshwater animals is

(a) urea ()

(b) uric acid ()

(c) ammonia ()

(d) ammonium hydroxide ()

4. The contractile protein that forms the thick filaments in muscle fibers is

(a) actin ()

(b) myosin ()

(c) myofibril ()

(d) myofilament ()

(3)

5. A typical neuron in a vertebrate consists of four major regions

(a) a cell body, dendrites, an axon, and synaptic terminals ()

(b) a cell body, dendrites, an axon, and Schwann cell ()

(c) a cell body, dendrites, an axon, and internode ()

(d) a cell body, dendrites, an axon, and myelin sheath ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following :

3×5=15

1. Cutaneous respiration

(5)

2. Neurogenic heart and myogenic heart

(6)

3. Role of ADH in urine formation

(7)

4. Types of muscle

(8)

5. Structure of typical neuron

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VII

(**Biochemistry**)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

1. Define lipid. Describe different types of lipids.
Add a note on the biological significances of
lipids. 1+4+2=7

Or

Give an account on different types of amino
acids. Add a note on peptide. 5+2=7

2. What is enzyme? Give a detailed note on the
different types of enzymes. 1+6=7

Or

Define vitamin. Describe different types of
vitamins with their significance. 1+6=7

3. Describe the process of gluconeogenesis in
detail. 7

Or

What is glycogenolysis? Describe various
steps of glycogenolysis with a well-labeled
diagram. 1+6=7

4. Give a detailed note on tricarboxylic acid. 7

Or

What is oxidative phosphorylation? Give a
detailed note on ATP synthesis. 1+6=7

5. Give a detailed account on β -oxidation of fatty
acids with a well-labeled flowchart of the
mechanism. 7

Or

Describe the mechanism of ketogenesis with a
note on its importance. 7

Subject Code : **V**/ZOO (vii)

Booklet No. **A**

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V/zoo (vii)

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VII

(**Biochemistry**)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Which one of the following statements is correct for saturated fatty acids?

(a) Bond between the carbons in the hydrocarbon chain is single bond ()

(b) Bond between the carbons in the hydrocarbon chain is double bond ()

(c) Bond between the carbons in the hydrocarbon chain is triple bond ()

(d) There is no bond between the carbons in the hydrocarbon chain ()

(2)

2. In the functional structure of an enzyme, the protein part is known as

(a) apoenzyme ()

(b) holoenzyme ()

(c) coenzyme ()

(d) cofactor ()

3. When one molecule of glucose undergoes glycolysis

(a) 1 pyruvic acid is formed ()

(b) 2 pyruvic acids are formed ()

(c) 3 pyruvic acids are formed ()

(d) 4 pyruvic acids are formed ()

4. Which one of the following is the correct sequence of cytochromes in electron transport chain?

(a) Cytochrome b, cytochrome c₁, cytochrome c, cytochrome a, cytochrome a₃ ()

(b) Cytochrome c, cytochrome b, cytochrome a, cytochrome a₃, cytochrome c₁ ()

(c) Cytochrome c₁, cytochrome b, cytochrome c, cytochrome a₃, cytochrome a ()

(d) Cytochrome b, cytochrome c₁, cytochrome a, cytochrome c, cytochrome a₃ ()

(3)

5. Urea is the end product metabolism of

- (a) protein ()
- (b) lipid ()
- (c) carbohydrate ()
- (d) None of the above ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following in 5 to 8 sentences
each : 3×5=15

1. Steroids

(5)

2. Ribozymes

(6)

3. Glycogenesis

(7)

4. HMP shunt

(8)

5. Urea cycle

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VIII (A)

(Applied Zoology)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

1. What is lac culture? Describe the processing of lac industry. 2+5=7

Or

Explain the culture method of *Apis* and write its economic importance. 4+3=7

2. Give the classification and brief account of rearing of silkworm. 3+4=7

Or

Write different important medicines obtained from animals. 7

3. Illustrate the natural and applied control of insect pests. 7

Or

Describe vermicomposting in detail. 7

4. Explain the process of induced breeding in fishery. What are the economic importances of fish? 4+3=7

Or

Write an account of the prawn culture. 7

5. Write a note on the wool industry of India. 7

Or

Describe the process and products of piggery. 4+3=7

★★★

Subject Code : **V**/ZOO (viii) (A)

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V/ZOO (viii) (A)

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VIII (A)

(Applied Zoology)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Repellants are used to

- (a) check the feeding of insects ()
- (b) attract the insects ()
- (c) improve the egg laying of insects ()
- (d) reduce the egg laying of insects ()

2. Drone bees are

- (a) the workers in the bee colony ()
- (b) the female members of the bee colony ()
- (c) the male members of the bee colony ()
- (d) the queen of the bee colony ()

3. Pebrine is

- (a) one of the worst diseases of lac insect ()
- (b) one of the worst diseases of silkworm ()
- (c) one of the worst diseases of bees ()
- (d) one of the worst diseases of prawn ()

4. Desi breeds (indigenous) of poultry are

- (a) Aseel, Plymouth Rock, Ghagus, Wyandotte ()
- (b) Ghagus, Bustra, Plymouth Rock, New Hampshire ()
- (c) Rhode Island Red, Aseel, Wyandotte, Malay ()
- (d) Aseel, Malay, Ghagus, Bustra ()

(3)

5. The creamy colour of milk is due to the presence of

- (a) carotene and riboflavin ()
- (b) fat and calcium phosphate ()
- (c) calcium and caseinate ()
- (d) amylase and lactase ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following in 5–8 sentences each :

3×5=15

1. Types of bee for apiculture

(5)

2. Exotic fishes

(6)

3. Animals of leather industry

(7)

4. Pearl formation

(8)

5. Insecticides

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VIII (B)

(Entomology)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

Answer **all** questions

1. Give the systematic classification of insect up to orders with example. 7

Or

What are the major insect pests? Explain about paddy pests. 3+4=7

G16/147a

(Turn Over)

2. Write short notes on the following : 3½+3½=7

(a) Body wall of insect

(b) Respiration in insect

Or

Describe the digestive organs of insect with suitable diagram. 7

3. Write short notes on the following : 3½+3½=7

(a) Social behaviour of insect

(b) Ametabolous

Or

Explain the hormonal regulation of metamorphosis. 7

4. Write short notes on the following : 3½+3½=7

(a) Economic importance of silk moth

(b) Effects of juvenile hormone on insects

Or

Describe the life cycle of honeybee with labelled diagram. 7

G16/147a

(Continued)

(3)

5. What are parasitic insects? Write on their effects. 3+4=7

Or

Give an account of the chemical control of insect pests. 7

Subject Code : **V**/ZOO (viii) (B)

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V/ZOO (viii) (B)

2 0 1 5

(5th Semester)

ZOOLOGY

Paper : ZL-VIII (B)

(**Entomology**)

(PART : A—OBJECTIVE)

(Marks : 20)

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SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. In insect, the heart is divided into

- (a) 2 chambers ()
- (b) 3 chambers ()
- (c) 4 chambers ()
- (d) None of the above ()

(2)

2. Metamorphosis of insect is complex in

- (a) Exopterygota ()
- (b) Endopterygota ()
- (c) Hemidoptera ()
- (d) Pterygota ()

3. The degree of hardening of insect cuticula is known as

- (a) sclerotization ()
- (b) chitin ()
- (c) exoskeleton ()
- (d) endoskeleton ()

4. The sting can be used more than once by

- (a) workers ()
- (b) drones ()
- (c) queen ()
- (d) None of the above ()

(3)

5. Grasshopper belongs to the order

(a) Hymenoptera ()

(b) Lepidoptera ()

(c) Hemiptera ()

(d) Orthoptera ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following in 5 to 7 sentences
each : 3×5=15

1. Methods of preservation of insects

(5)

2. Mouthparts of Insecta with example

(6)

3. Hemimetabolous

(7)

4. Molting hormones

(8)

5. Control of insect by integrated method
