

2017

(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 prokaryotic cell? Give a comparative account of the structures of prokaryotic cell and eukaryotic cell. 2+5=7

Or

Discuss the facilitated diffusions of membrane transport with example. 7

2. What is Golgi complex? Describe its structure, composition and functions. 1+2+2+2=7

Or

Describe the structure and chemical composition of ribosome. 3½+3½=7

3. Give an account of the structure and function of mitochondria. 3½+3½=7

Or

Write notes on microfilaments and intermediate filaments. 3½+3½=7

4. Discuss in detail the transport of molecules across nuclear membrane. 3½+3½=7

Or

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

(a) Cell-cell interactions

(b) Cell junctions

5. With a neat labeled diagram, describe different stages of meiosis-1. 7

Or

Define cancer. What are different types of cancer? 1+6=7

★★★

Subject Code : ZOO/V/05

Booklet No. **A**

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ZOO/V/05

2 0 1 7

(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. Transport of molecules across the membrane that takes place without the help of any permease is called

- (a) simple diffusion ()
- (b) active diffusion ()
- (c) facilitated diffusion ()
- (d) All of the above ()

(2)

2. The non-specific uptake of small droplets of extracellular fluids by endocytic vesicles is known as

- (a) phagocytosis ()
- (b) pinocytosis ()
- (c) receptor-mediated endocytosis ()
- (d) exocytosis ()

3. The main structural protein of microfilament is

- (a) lamin ()
- (b) desmin ()
- (c) tubulin ()
- (d) actin ()

4. The chromatids of the paired homologous chromosomes are joined at one or more discrete points called

- (a) telomeres ()
- (b) chromomeres ()
- (c) chiasmata ()
- (d) chromonemata ()

(3)

5. During meiosis and mitosis, the nucleolus disappears during

(a) telophase ()

(b) metaphase ()

(c) anaphase ()

(d) prophase ()

(4)

SECTION—B

(Marks : 15)

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

1. Limitation of Cell Theory

(5)

2. Lysosome

(6)

3. Microtubule

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(7)

4. Different morphological types of chromosomes according to the position of the centromere

(8)

5. Carcinogens

2 0 1 7

(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. Describe the process of complete digestion of fats with suitable schematic representation. 7

Or

What are the different types of respiration?
Describe the mechanism of lung respiration. 2+5=7

2. Describe the sequence of events in cardiac cycle. 7

Or

Write an account of ABO blood grouping system. Add a note on Rh factor. 5+2=7

3. What is micturition? Write an account of nervous control of micturition. 7

Or

Define osmoregulation. Write the mechanism of osmoregulation in marine animals. 1+6=7

4. What are the different types of muscles? Write an account of the ultrastructure of muscles. 1+6=7

Or

Explain the mechanism of muscle contraction. 7

5. What do you mean by resting and action potentials? Write notes on propagation of nerve impulse in myelinated nerve fibre. 2+5=7

Or

What are neurotransmitters? Give a detailed mechanism of synaptic transmission. 1+6=7

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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. The type of respiration that works in both air and water but requires a thin, moist and highly vascularized skin is

(a) pulmonary respiration ()

(b) cutaneous respiration ()

(c) internal respiration ()

(d) external respiration ()

(2)

2. The site at which the intrinsic and extrinsic coagulation cascades converge is

(a) activated factor XI ()

(b) activated factor IX ()

(c) activated factor X ()

(d) activated factor XII ()

3. The nitrogenous waste product formed from ammonia in the liver by ornithine cycle is

(a) urea ()

(b) uric acid ()

(c) ammonia ()

(d) urea and uric acid ()

4. Which one of the following forms major component of proteins of myofibril?

(a) Actin ()

(b) Myosin ()

(c) Troponin ()

(d) Tropomyosin ()

(3)

5. The most common type of neuron having several dendrites and one axon extending from the cell body is

- (a) motor neuron ()
- (b) bipolar neuron ()
- (c) unipolar neuron ()
- (d) multipolar neuron ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following :

3×5=15

1. Difference between extracellular and intracellular digestion

(5)

2. Open and closed circulation

(6)

3. Functions of kidney

(7)

4. Muscle proteins

(8)

5. Structure of neuron

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(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. What are lipids? Describe the different types and significance of lipids. 7

Or

What are amino acids? Give a detailed note on the classification of amino acids.

2. Discuss the properties and types/ classification of enzymes. 7

Or

Write short notes on the following : $3\frac{1}{2}+3\frac{1}{2}=7$

(a) Enzyme inhibition

(b) Water-soluble vitamins

3. What do you understand by gluconeogenesis? Give a detailed account of the process of gluconeogenesis. 7

Or

What is glycogenolysis? Explain the various steps involved in glycogenolysis.

4. What is TCA cycle? Describe in detail the tricarboxylic acid cycle. 7

Or

Write a detailed note on ATP synthesis.

5. What is ketogenesis? Discuss the significance, various steps and reactions of ketogenesis. 7

Or

Explain β -oxidation of fatty acid in detail.

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Subject Code : ZOO/V/07

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(2)

2. Beriberi is a disease caused by deficiency of

(a) vitamin 1 ()

(b) vitamin 2 ()

(c) vitamin 3 ()

(d) vitamin 5 ()

3. The conversion of glucose-6-phosphate to fructose-6-phosphate is catalyzed by

(a) phosphofructokinase ()

(b) phosphoglucose isomerase ()

(c) phosphoglycerate kinase ()

(d) phosphoglyceromutase ()

4. How many ATP molecules are produced from the complete oxidation of a single molecule of glucose?

(a) 4 ()

(b) 6 ()

(c) 24 ()

(d) 36 ()

(3)

5. In urea cycle, NH_3 and CO_2 reacts in the presence of ATP to form

- (a) ornithine ()
- (b) arginine ()
- (c) aspartic acid ()
- (d) carbamoyl phosphate ()

(4)

SECTION—B

(Marks : 15)

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

1. Disaccharides

(5)

2. Coenzymes

(6)

3. Significance of glycolysis

(7)

4. HMP shunt

(8)

5. Synthesis of triglycerides

2 0 1 7

(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. How are bees classified? Discuss briefly the different types of bees. 3+4=7

Or

What is lac? Discuss the processing of lac for further use. 2+5=7

2. Describe in brief the life cycle of silkworm. Add a note on its economic importance. 5+2=7

Or

Write an account on animals used in medicine. 7

3. What are pesticides? Discuss the different types of pesticides. 2+5=7

Or

Write a note on integrated pest management. 7

4. Describe the method of prawn culture. 7

Or

Describe the process of induced breeding in fish. 7

5. Discuss the intensive method of poultry farming. 7

Or

Describe the industrial processing of milk. Add a list of important milk products. 5+2=7

Subject Code : ZOO/V/08 (a)

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ZOO/V/08 (a)

2 0 1 7

(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. The two crops of Kusumi strain of lac are

- (a) Jethwi and Aghani ()
- (b) Kartiki and Baisakhi ()
- (c) Jethwi and Kartiki ()
- (d) Aghani and Baisakhi ()

(2)

2. Pebrine, a disease of silkworm, is mainly caused by
- (a) *Tricholyga sorbillans* ()
 - (b) *Nosema bombycis* ()
 - (c) *Spicaria prasina* ()
 - (d) *Attacus ricini* ()
3. The process of using worms and microorganisms to convert organic matter into nutrient-rich humus is
- (a) decomposition ()
 - (b) recycling ()
 - (c) vermicomposting ()
 - (d) restoration ()
4. The remarkable emergence of aquaculture as an important and highly productive agricultural activity is referred as
- (a) Blue Revolution ()
 - (b) Green Revolution ()
 - (c) aqua bloom ()
 - (d) None of the above ()

(3)

5. The chief protein component of wool is

(a) cellulose ()

(b) fibroin ()

(c) sericin ()

(d) keratin ()

(4)

SECTION—B

(Marks : 15)

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

3×5=15

1. Economic importance of bee

(5)

2. Stifling of silk

(6)

3. Biomagnification

(7)

4. Pearl formation

(8)

5. Crusting of leather

2 0 1 7

(5th Semester)

ZOOLOGY

Paper : ZL-VIII (B)

(**Entomology**)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks : 35*)

The questions are of equal value

1. Write the general characters and classification of Insecta up to order.

Or

Describe the major insect pests of wheat.

2. Explain the male reproductive system of insect with suitable diagram.

Or

Describe the digestive system of insects with suitable diagram.

3. Explain the hormonal regulation of insect metamorphosis.

Or

Describe the social behaviour in insects.

4. Explain the life cycle and economic importance of honey bee.

Or

Explain the different types of hormones in insects and their applications.

5. Describe the biological control of insect pests and add a note on the advantages.

Or

Give an account of parasitic insects and their effects with examples.

★★★

Subject Code : ZOO/V/08 (b)

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ZOO/V/08 (b)

2 0 1 7

(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. Lacewings insects comes under the order

(a) Chiroptera ()

(b) Neuroptera ()

(c) Collembola ()

(d) Hemiptera ()

(2)

2. Insect's exoskeleton is made up of

- (a) Chitin ()
- (b) Lignin ()
- (c) Lipid ()
- (d) None of the above ()

3. Caste system in honey bee is of

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

4. *Bombyx mori* is

- (a) silkworm ()
- (b) lac insect ()
- (c) honey bee ()
- (d) None of the above ()

(3)

5. Which of the following is predatory insect?

- (a) Braconid wasps ()
- (b) Tachina flies ()
- (c) Lady beetles ()
- (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. Insects collection

(5)

2. Mouthparts of insects

(6)

3. Hemimetabolous metamorphosis

(7)

4. Economic importance of silkworm

(8)

5. Chemical control of insect pests
