V/ZOO (v)

2016

(5th Semester)

ZOOLOGY

Paper : ZL–V

(Cell Biology)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The questions are of equal value

1. Give a brief account on tenets and limitations of cell theory.

Or

Discuss the facilitated and active transport of molecules across cell membrane.

2. Describe the structure and function of rough endoplasmic reticulum.

Or

Write short notes on endocytosis and phagocytosis with suitable diagrams.

3. Describe the structure and function of mitochondria.

Or

Discuss the structure of microtubule.

4. Describe briefly cell cycle checkpoints and control points. How is cell cycle regulated by cyclin-CDK complexes?

Or

What is cancer? Discuss different agents that can cause cancer.

5. Describe different components and functions of extracellular matrix.

Or

What is karyotyping? Discuss the concept, components and importance of karyotyping.

★★★

Subject Code : V/ZOO (v)

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2016

(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. Nucleolus is absent in

(a) all plant cells ( )

(b) all animal cells ( )

(c) prokaryotic cells ( )

(d) eukaryotic cells ( )

2. The process of ingestion of large-sized solid substances by the cell is called

(a) pinocytosis ( )

(b) phagocytosis ( )

(c) receptor-mediated endocytosis ( )

(d) exocytosis ( )

3. Microtubule is made up of _____ protofilaments.

(a) 10 ( )

(b) 11 ( )

(c) 12 ( )

(d) 13 ( )

4. The six subunits of protein in the channels of gap junction are called

(a) occludins ( )

(b) connexons ( )

(c) linkers ( )

(d) placoglobins ( )

5. Crossing-over occurs between

(a) non-sister chromatids ( )

(b) sister chromatids ( )

(c) non-homologous chromosomes ( )

(d) metaphase chromosomes ( )

SECTION—B

(*Marks* : 15)

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

1. Prokaryotic cells

2. Peroxisomes

3. Intermediate filaments

4. Nucleolus

5. Prophase–I of meiosis

★ ★ ★

V/ZOO (vi)

2016

(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 extracellular and intracellular digestions? Describe the mechanism of digestion of carbohydrates. 2+5=7

Or

What do you understand by cutaneous respiration? Add a note on the mechanism of respiration in gills. 2+5=7

2. Describe the difference between open and closed types of circulatory systems. 7

Or

Give an account of extrinsic and intrinsic factors involved in the mechanism of blood coagulation.

3. Describe in detail the physiology of urine formation. 7

Or

Describe the structure of mammalian kidney.

4. Give a brief account of contractile and regulatory muscle proteins. 7

Or

Discuss in detail the process of muscle contraction in a skeletal muscle.

5. Give an account of the ultrastructure of a typical neuron with a neat labelled diagram. 5+2=7

Or

Differentiate between myelinated and non-myelinated nerve fibres. Explain the mechanism of propagation of nerve impulse in a non-myelinated nerve fibre. 2+5=7

★★★

Subject Code : V/ZOO (vi)

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2016

(5th Semester)

ZOOLOGY

Paper : ZL–VI

(Animal Physiology)

(PART : A—OBJECTIVE)

(*Marks* : 20)

The figures in the margin indicate full marks for the questions

Answer **all** questions

SECTION—A

(*Marks* : 5)

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

1. The oxyntic or parietal cells of the epithelium of the stomach secrete

(a) hydrochloric acid ( )

(b) trypsin ( )

(c) chymotrypsin ( )

(d) elastase ( )

2. The normal cardiac cycle lasts about

(a) 0·4 sec ( )

(b) 0·8 sec ( )

(c) 0·16 sec ( )

(d) 1 sec ( )

3. Water reabsorption in the kidney is regulated by

(a) oxytocin ( )

(b) ADH ( )

(c) ACTH ( )

(d) FSH ( )

4. The section of myofibril between two *Z*-discs is called

(a) *H*-band ( )

(b) *A*-band ( )

(c) *I*-band ( )

(d) sarcomere ( )

5. The myelin sheath of a neuron is interrupted at regular intervals by minute gap called

(a) Nissl bodies ( )

(b) synapse ( )

(c) nodes of Ranvier ( )

(d) Schwann cells ( )

SECTION—B

(*Marks* : 15)

Write short notes on the following : 3×5=15

1. Role of liver in digestion

2. Pacemaker

3. Ammonotelic animals

4. Isometric contraction

5. Resting potential

★ ★ ★

V/ZOO (vii)

2016

(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 carbohydrates. Describe different types of carbohydrate. Write the significances of carbohydrates. 1+4+2=7

Or

What are peptides? Give a detailed note on the properties of peptides. 1+6=7

2. Explain Michaelis-Menten equation for enzyme action. 7

Or

Write notes on the following : 3½+3½=7

(a) Coenzymes

(b) Ribozyme

3. Describe the process of glycolysis in detail. 7

Or

What is glycogenesis? Describe various steps of glycogenesis with their significances. 1+(5+1)=7

4. Describe the hexose monophosphate shunt system in detail. 7

Or

What is oxidative phosphorylation? Give a detailed note on electron transport chain. 1+6=7

5. Describe the mechanism of lipogenesis with a note on its importance. 5+2=7

Or

Give a detailed account on urea cycle with its importance. 5+2=7

★★★

Subject Code : V/ZOO (vii)

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2016

(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. The number of carbons contained in heptose is

(a) 16 ( )

(b) 20 ( )

(c) 24 ( )

(d) 7 ( )

2. A non-protein group bound to the enzyme protein is

(a) prosthetic ( )

(b) holoenzyme ( )

(c) apoenzyme ( )

(d) None of the above ( )

3. The process of reconversion of glycogen to glucose is known as

(a) glycogenesis ( )

(b) glycolysis ( )

(c) glycogenolysis ( )

(d) glucogeogenesis ( )

4. Electron cascade occurs in

(a) HMP shunt ( )

(b) ETC ( )

(c) ATP synthesis ( )

(d) Kreb's cycle ( )

5. In 1869, nucleic acids were discovered by

(a) Friedrich Miescher ( )

(b) James Watson and Francis Crick ( )

(c) Rosalind Franklin ( )

(d) Madyn McCarty ( )

SECTION—B

(*Marks* : 15)

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

1. Significance of lipids

2. Suicide inhibitors

3. Gluconeogenesis

4. ATP synthesis

5. Nucleotides

★ ★ ★

V/ZOO (viii) (A)

2016

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

Or

Describe the cultivation of lac. Mention the economic importance of lac. 4+3=7

2. Give a brief account of rearing of silkworm. 7

Or

Write a note on important medicines obtained from animals. 7

3. What are pests? Describe the biological control of pests. 2+5=7

Or

Describe vermicomposting in detail. 7

4. Discuss different fish-farming practices. What are different culturable fishes? 4+3=7

Or

What are different species of pearl-producing oysters? Describe the methods of oyster culture. 3+4=7

5. Write a detailed note on leather industry. 7

Or

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

★★★

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

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2016

(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. Antifeedants are used to

(a) attract the insects ( )

(b) improve egg laying of insects ( )

(c) reduce egg laying ( )

(d) prevent an insect from eating ( )

2. The bee-larva to be the queen is fed with

(a) pollen ( )

(b) nectar ( )

(c) royal jelly ( )

(d) None of the above ( )

3. The fifth instar larva of silkworm secretes liquid silk through

(a) anal horn ( )

(b) mouth ( )

(c) spinneret ( )

(d) pseudolegs ( )

4. The by-product of fishing industry is

(a) venom ( )

(b) oil ( )

(c) silk ( )

(d) polish ( )

5. One of the amino acids which constitutes the wool protein is

(a) insulin ( )

(b) glucose ( )

(c) arginine ( )

(d) None of the above ( )

SECTION—B

(*Marks* : 15)

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

1. Inoculation of lac insects

2. Types of pesticide

3. Life cycle of silkworm

4. Species of prawn

5. Pasteurization in milk industry

★ ★ ★

V/ZOO (viii) (B)

2016

(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

1. What is entomology? What are the methods used in collection of insects? Write their preservation. 1+3+3=7

Or

What is pest? Describe the salient features of the major insect pest of cotton. 1+6=7

2. Describe the structure and functions of insect mouthparts with a suitable diagram. 7

Or

Describe the different types of respiration occurred in insects. 7

3. Describe the different types of metamorphosis. 7

Or

Write an account of caste system in insects. 7

4. Explain the mechanism of action of insects hormones. 7

Or

Explain the life cycle and economic importance of silkworm. 7

5. Give an account of predatory insects and their effects. 7

Or

Write an account of integrated pest management. 7

★★★

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

Booklet No. A

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2016

(5th Semester)

ZOOLOGY

Paper : ZL–VIII (B)

(Entomology)

(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. Termite belongs to the order of

(a) Collembola ( )

(b) Isoptera ( )

(c) Orthoptera ( )

(d) Odonata ( )

2. Pieris brassicae is a pest of

(a) sugarcane ( )

(b) vegetable ( )

(c) pulse crop ( )

(d) cotton ( )

3. Siphoning type of mouthparts is found in

(a) grasshopper ( )

(b) honeybee ( )

(c) butterfly ( )

(d) mosquito ( )

4. There are total six types of castes in

(a) ant ( )

(b) honeybee ( )

(c) termite ( )

(d) warp ( )

5. Exchange of food among colony members by mouth is called

(a) ecdysone ( )

(b) pheromone ( )

(c) swarming ( )

(d) trophallaxis ( )

SECTION—B

(*Marks* : 15)

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

1. Insect body wall

2. Parasitic insect

3. Natural control of insect pests

4. Juvenile hormone

5. Social behaviour of insects

★ ★ ★