D 11726 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3E 09—CLASSIFICATION AND STRUCTURAL ORGANIZATION OF ANIMALS

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

I. Answer any *four* of the following. (Short Answer Type Questions) :

1 Paratype.

2 Ethics in Taxonomy.

3 General organization and classification of phylum Platyhelminthes.

4 Single Nucleotide Polymorphism.

5 Aquatic birds.

6 Erinaceus.

7 Species.

(4 × 2 = 8 weightage)

II. Answer any *four* of the following. (Short Essay Type Questions) :

8 Write a note on the origin of the Metazoan.

9 Coelocanthus is considered as a connecting link between Pisce and land vertibrates , give reason.

10 Give an account on the Affinities and systematic position of minor phyla : Sipunculida.

11 Write a note on Phylogenetic relations of Ornythorhynchus (Reptilia-Mammalia).

12 With schematic representation explain DNA Finger printing.

13 General classification of Phylum protozoa.

14 Write an explanatory note on Hydra.

(4 × 3 = 12 weightage)

III. Answer any *two* of the followinmg. (Long Essay Type Questions) :

15 Write general characters of Phylum Mullscans and classify up to classes with examples.

16 Write notes on Molecular Phylogeney.

17 Distinguish between agnatha and gnathostomata with suitable examples.

18 Enumerate the difference between Terrestrial birds and Migratory birds with example.

(2 × 5 = 10 weightage)

D 11724 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3E 09—HUMAN GENETICS—I : CLINICAL GENETICS

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
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4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* of the following. Each question carries 2 weightage :

1 Haemoglobinopathies.

2 PCR.

3 GenBank.

4 Entrez.

5 Mitochondrial inheritance.

6 Parkinson's disorder.

7 Sequin.

(4 × 2 = 8 weightage)

Part B

II. Answer any *four* of the following. Each question carries 3 weightage :

8 Give a note on sequence alignment techniques.

9 Write on renal disorders in human.

Turn over

10 Differentiate Mendelian inheritance from Non-Mendelian inheritance.

11 Write an account on checkpoints in cell cycle.

12 Explain the role of receptor molecules in single transduction.

13 Write notes on different types of respiratory disorders in human.

14 Give note on different banding techniques.

(4 × 3 = 12 weightage)

Part C

III. Answer any *two* of the following. Each question carries 5 weightage :

15 Write an essay on the applications of r-DNA technology. Add note on its clinical applications.

16 Give an account on neuromuscular disorders.

17 Explain the steps in somatic cell hybridization. Add note on its applications in human health care.

18 Write an essay on different types of numerical abnormalities of chromosomes of human.

(2 × 5 = 10 weightage)

D 11723

(Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3E 09—FISHERY SCIENCE—I : TAXONOMY BIOLOGY , PHYSIOLOGY AND ECOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* of the following. Each question carries 2 weightage :

1 What is Apolysis ?

2 Briefly explain physostomous and physoclistous conditions.

3 What is Eutrophication ?

4 Write down the characteristics of rhithron zone.

5 What is a catadromous fish ? Give two examples.

6 Give the adaptations of the family Cichlidae.

7 Briefly explain the functions of green gland.

(4 × 2 = 8 weightage)

Turn over

Part B

II. Answer any *four* of the following. Each question carries 3 weightage.

8 Explain the ecological significance of coral reefs.

9 Discuss the adaptive modifications among hill stream fishes.

10 Briefly explain different types of fish muscles.

11 Write on the physical and chemical properties of lake.

12 Explain the factors affecting feeding habit among fishes.

13 Discuss the economic importance of the family Poeciliidae with suitable examples.

14 Describe the structure of pituitary gland in fish. Comment on their cell types, secretions and functions.

(4 × 3 = 12 weightage)

Part C

III. Answer any *two* of the following. Each question carries 5 weightage.

15 Write an essay on the various morphomeristic data for fish taxonomic studies.

16 Discuss the organization of gill among elasmobranch and bony fishes.

17 Describe the zonation and characteristics of a marine ecosystem.

18 Explain the mechanism of ormoregulation in marine fish.

(2 × 5 = 10 weightage)

D 44908

Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (SPECIAL SUPPLEMENTARY) EXAMINATION, APRIL 2018

Zoology

MZL 307—ENTOMOLOGY – ANATOMY AND PHYSIOLOGY

(2001 to 2009 Admissions–Non-CUCSS)

Time : Three Hours Maximum : 80 Marks

I. Answer any *two* of the following questions :

1 Give an account on histology of the integument and describe the external process involved in the functioning of the integumentary system.

2 Give a detailed account on the adaptation of endoparasistic and aquatic insects.

3 Write the composition and function of haemolymph.

4 Define digestion. Explain the mechanisms involved in digestion processes taking place in the insects.

(2 × 15 = 30 marks)

II. Answer any *three* of the following questions :

5 Write a note on respiratory pigments.

6 Write notes on axial transmission and osmoregulation in insects.

7 Describe structure of neuron with suitable diagram.

8 Describe the muscular system of insects.

9 Write a note on absorption of digested food in insects.

(3 × 10 = 30 marks)

III. Answer any *five* of the following questions :

10 Blastoderm.

11 Oviposition.

12 Locomotion.

13 Germ layers.

14 Light production.

15 Photoreception.

16 Muscle contraction.

(5 × 4 = 20 marks)

D 44907

Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (SPECIAL SUPPLEMENTARY) EXAMINATION, APRIL 2018

Zoology

MZL 301—CELL AND MOLECULAR BIOLOGY

(2001 to 2009 Admissions–Non-CUCSS)

Time : Three Hours Maximum : 80 Marks

I. Answer any *two* of the following questions :

1 Explain about the replication of DNA.

2 Describe the process of eukaryotic transcription.

3 Explain in detail about DNA cloning and the development of transgenic organisms.

4 Give a detailed account on lac operon

(2 × 15 = 30 marks)

II. Answer any *three* of the following questions :

5 Give a detailed account on DNA damage and repair.

6 Explain in detail about the active centers of ribosomes.

7 Give an account on heteroduplex DNA model.

8 Explain the characteristic features oil eukaryotic genome.

9 Give an account of differences between lytic and lysogenic viral cycles.

(3 × 10 = 30 marks)

III. Answer any *five* of the following questions :

10 Introns.

11 Histone gene cluster.

12 DNA polymerase.

13 Cloning.

14 Transposons.

15 Bacteriophage.

16 Recombinant DNA.

(5 × 4 = 20 marks)

D 11721 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3E 09—ENTOMOLOGY—I : MORPHOLOGY AND TAXONOMY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* of the following. Each question carries 2 weightage :

1 Briefly explain locomotion in Collembola.

2 Give an account of fossil insects.

3 Comment on the stridulation in Cicada.

4 Describe the types of insect head.

5 What is endothorax ? Explain the structure.

6 Write notes on common galls pests.

7 Write a short account of termitarium.

(4 × 2 = 8 weightage)

Part B

II. Answer any *four* of the following. Each question carries 3 weightage :

8 Describe the different types of antennae in insects.

9 Briefly explain sexual dimorphism and parental care in Dermaptera.

Turn over

10 Describe the abdominal appendages in insects.

11 Write the major characters and medical importance of the family Reduviidae.

12 Explain the salient features of the order Lepidoptera.

13 Give an account of oviposition methods in aquatic insects.

14 Describe the adaptations of parasitic and predatory insects.

(4 × 3 = 12 weightage)

Part C

III. Answer any *two* of the following. Each question carries 5 weightage :

15 Write an essay on different types of mouthparts in insects.

16 Make a critical account of caste differentiation and social behaviour in honey bees.

17 Write an essay on insect communication.

18 Classify the order Orthoptera down to families giving salient features and examples.

(2 × 5 = 10 weightage)

D 11720 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3C 08—DEVELOPMENTAL BIOLOGY AND ENDOCRINOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
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4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* of the following. Each question carries 2 weightage :

1 What are segmentation genes in *Drosophila* development ?

2 What is meant by specification in developmental biology ?

3 Comment on heterochrony.

4 Explain the effect of retinoic acid as a teratogen.

5 Give a brief account on hormones involved in pregnancy and parturition.

6 What are G protein-linked receptors ?

7 What are Pheromones ?

(4 × 2 = 8 weightage)

II. Answer any *four* of the following. Each question carries 3 weightage.

8 Distinguish between competence and induction. Add an account on different types of inductive interactions.

9 What is Regeneration ? Give an account on different types of regeneration.

10 What are imaginal discs ? Explain the sequence of events involved in the development of an imaginal disc in *Drosophila*.

11 Write on environmental regulation of normal development.

12 Briefly describe the structure and functions of thyroid gland. Add a note on the pathophysiology of the gland.

13 Write on the mechanisms involved in the regulation of hormone secretion.

14 What are brain hormones ? Elucidate their role in behavior.

(4 × 3 = 12 weightage)

III. Answer any *two* of the following. Each question carries 5 weightage.

15 Write on the synthesis, chemistry and functions of steroid hormones.

16 Explain the process of limb development in vertebrates with a suitable example.

17 Write an essay on the biochemistry and physiology of fertilization.

18 Explain the control of gene expression at the level of translation.

(2 × 5 = 10 weightage)

D 11719 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3C 07—IMMUNOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

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4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* of the following. Each question carries 2 weightage :

1 Precipitation reactions.

2 B-cell receptors.

3 Common adjuvants.

4 Exogenous pathway of antigen processing.

5 Recombinant Signal Sequence.

6 Distinguish between allografts and autografts.

7 What are monoclonal antibodies ?

(4 × 2 = 8 weightage)

Part B

II. Answer any *four* of the following. Each question carries 3 weightage :

8 Write a short essay on the structure of MHC-I molecules.

9 Compare ELISA with Western Blot technique.

10 Compare humoral and cellular immunity.

Turn over

11 With illustrations describe the structure of a typical immunoglobulin molecule.

12 Write a short essay on Type-II hypersensitivity reaction.

13 Briefly describe the factors that influence immunogenicity

14 Write a short essay on Classical complement pathway.

(4 × 3 = 12 weightage)

III. Answer any *two* of the following. Each question carries 5 weightage :

15 Write an elaborate account on cytokines and their role in immune mechanism.

16 Write an essay on hematopoiesis.

17 Write an essay on different types of vaccines. Add a note on their merits and demerits.

18 Write an essay on immune deficiency diseases.

(2 × 5 = 10 weightage)

D 11719 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Zoology

ZOL 3C 07—IMMUNOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

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4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* of the following. Each question carries 2 weightage :

1 Precipitation reactions.

2 B-cell receptors.

3 Common adjuvants.

4 Exogenous pathway of antigen processing.

5 Recombinant Signal Sequence.

6 Distinguish between allografts and autografts.

7 What are monoclonal antibodies ?

(4 × 2 = 8 weightage)

Part B

II. Answer any *four* of the following. Each question carries 3 weightage :

8 Write a short essay on the structure of MHC-I molecules.

9 Compare ELISA with Western Blot technique.

10 Compare humoral and cellular immunity.

Turn over

11 With illustrations describe the structure of a typical immunoglobulin molecule.

12 Write a short essay on Type-II hypersensitivity reaction.

13 Briefly describe the factors that influence immunogenicity

14 Write a short essay on Classical complement pathway.

(4 × 3 = 12 weightage)

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15 Write an elaborate account on cytokines and their role in immune mechanism.

16 Write an essay on hematopoiesis.

17 Write an essay on different types of vaccines. Add a note on their merits and demerits.

18 Write an essay on immune deficiency diseases.

(2 × 5 = 10 weightage)