R–4616

Sub. Code
509201

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Amylase.

2. Haemoglobin.

3. Myogenic heart.

4. Structure of Kidney.

5. Types of Muscles.

6. Action potential.

7. Poikilotherms.

8. Adaptation to freezing.

9. Critinism.

10. Melatonin.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short note on pancreatic enzymes on digestion.

Or

(b) What are the functions of blood plasma?

12. (a) Draw and illustrate human heart.

Or

(b) Write short note on ECG.

13. (a) What are the chemical changes happend during muscle contraction?

Or

(b) Write short notes on the mechanism of hearing.

14. (a) Briefly discuss about the thermoregulation in poikilotherms.

Or

(b) Explain about the hormonal control of digestive system.

15. (a) Write short note on circadian rhythm.

Or

(b) Name any three diseases arise through hypo secretion of hormones.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss about the transport and exchange of respiratory gases.

17. Draw the structure of kidney and explain about the structure and function of Nephron.

18. Illustrate the Ultra structure of skeletal muscle and explain about the mechanism of muscle contraction.

19. Explain about the osmotic and ionic regulation using model organism.

20. Discuss about human endocrine glands and their secretion.

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R–4617

Sub. Code
509202

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Zoology

MICROBIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Cyanobacteria.

2. Gram staining.

3. Rose Bengal agar medium.

4. Differential medium.

5. Give any two examples for poultry diseases.

6. Anthrax.

7. Systematic infections.

8. Mycotoxins.

9. Probiotic.

10. Food poisoning.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on microbial diversity.

Or

(b) Briefly describe the fundamental characteristics of fungi.

12. (a) Write a short note on selective and differential media.

Or

(b) Describe pour plate technique.

13. (a) Explain briefly H5N1 infection.

Or

(b) Describe briefly the diagnostic methods of animal virus.

14. (a) Define Infection. Explain the possible source of infection.

Or

(b) Discuss in brief prevention of fungal infection in poultry form.

15. (a) Discuss in brief health benefits of probiotics.

Or

(b) Distinguish between probiotics and prebiotics.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on anatomy of bacteria.

17. What is bacterial growth? Explain in detail different phases of growth.

18. Explain in detail "Zoonotic diseases".

19. Write a detailed account on Mycotoxins and its impacts on human.

20. Discuss in detail the role of probiotic's in human health. Add a note on prebiotics.

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R–4618

Sub. Code
509203

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Zoology

IMMUNOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Explain all of the following:

1. Hematopoiesis.

2. IgA.

3. Natural killer cells.

4. Cytokines.

5. Hapten.

6. Epitope.

7. MHC.

8. Hypersentivity type IV.

9. Radioimmunoassay.

10. Hashimotos thyroiditis.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are secondary lymphoid organs and tissues? Explain in brief with labelled diagrams.

Or

(b) Give an account on the various classification methods of antigens.

12. (a) Describe the primary structure of an antibody molecule with a labelled diagram.

Or

(b) Explain any one function of IgM.

13. (a) Write short notes on cell mediated immune response.

Or

(b) What are antigen presenting cells and explain the major functions of antigen presentation.

14. (a) What is autoimmune disease and discuss any two diseases.

Or

(b) Make a note on immunotherapy and its role in cancer treatment.

15. (a) Write a note on the significance of ELISA.

Or

(b) What is hybridoma technology explain in brief.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Give a note on complement activation through classical pathways.

17. Give an account on innate immunity with suitable examples.

18. Define vaccine and explain its various types.

19. Write a note on histocompatibility complex and its significance.

20. Write a detail note on flow cytometry and immunofluorescence techniques.

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R–4619

Sub. Code
509204

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Zoology

GENETICS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is polygenic inheritance?

2. Define Pedigree analysis.

3. Explain linkage maps.

4. What is Barr bodies?

5. Define DNA mutation.

6. Explain gene-gene interaction.

7. Write the theory of natural selection.

8. Explain SNP.

9. Explain molecular divergence.

10. Define gene duplication.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe briefly about multiple alleles with an example.

Or

(b) Enumerate the scope of genetics.

12. (a) Discuss about linkage maps.

Or

(b) Write a short note on haploid.

13. (a) Enumerate the sequential of genes in C. elegans.

Or

(b) Give a short note on recombination.

14. (a) Describe briefly about the origin of unicellular organism.

Or

(b) Discuss the concept of recapitulation.

15. (a) Explain about neutral evolution.

Or

(b) Give a short note on biological clock.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the law of independent assortment.

17. Write an essay on chromosomal abnormalities.

18. Discuss gene expression in eukaryotes in detail.

19. Elucidate the stages in Primate evolution.

20. Explain Hardy-Weinberg's law with an example.

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R–4621

Sub. Code
509504

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Zoology

ECONOMIC ZOOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Pupal parasitoid.
2. Splenic fever.
3. Total mixed ration.
4. Ranikhet disease.
5. Silk gland.
6. Royal Jelly.
7. Macrobrachium rosenbergii.
8. Arthospira sp.
9. Cattle-fish Culture.
10. Integrated cost analysis.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out the beneficial insects and their role in agriculture.

Or

(b) Describe the maintenance of animals in zoos.

12. (a) Write a note on national status of dairy farming.

Or

(b) Elucidate the process of debreaking and its importance.

13. (a) Write briefly on nutrition requirement of silk worms.

Or

(b) List out the by-products of honey bees and its uses.

14. (a) Differentiate mono and polyculture of fishes with examples.

Or

(b) Write a brief note on ornamental fish culture.

15. (a) List out the constrains in integrated farming.

Or

(b) Describe the integrated farming of livestock, birds and fishes.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on cattle farming.

17. Discuss dairy farming and management.

18. Elucidate the methods of honey production and its significance.

19. Explain the farming of *Spirulina* and its significance.

20. Describe the different types of integrated farming systems.

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R5461

Sub. Code
509401

M.Sc. DEGREE EXAMINATION, APRIL – 2021

Fourth Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Enlighten the importance of mitochondria.
2. Comment on Recombinant DNA.
3. Comment on T4 DNA ligase.
4. S1 nuclease.
5. Explain nick translation.
6. Pyrosequencing.
7. Regenerative medicines.
8. Comment on Humulin N.
9. Comment on - Transgenic mice.
10. Gene pharming issues in mammals.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the importance of cellular macromolecules.

Or

(b) Describe the structural features of plasma membrane.

12. (a) Differentiate plasmid from phagemid with suitable examples.

Or

(b) How do you analyse the efficacy of gene transformation? Explain.

13. (a) Discuss the impact of molecular techniques in prenatal gene therapy.

Or

(b) Elaborate the second generation sequencing.

14. (a) Describe the growth behaviors of animal cells in recombinant product synthesis.

Or

(b) How do you prepare monolayer sells and suspension cells?

15. (a) What type of infertility can artificial insemination treat? What to expect during the procedure.

Or

(b) "Super ovulation" - explain with suitable examples.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Demonstrate the importance of rDNA technology in human welfare.

17. Design a method to construct a suitable vector to express a eukaryotic gene in *Saccharomyces cerevisiae*.

18. "Site-directed mutagenesis is a tool for diagnosis, prognosis and treatment of diseases" – Justify.

19. Describe the method used for the production of human insulin.

20. Demonstrate the applications of stem in transgenic animal technology.

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