

MODEL QUESTION PAPERS

M Sc.Zoology Degree (C.S.S) Examination
First Semester
Faculty of Sciences
**ZL010101ANIMAL DIVERSITY: PHYLOGENETIC AND
TAXONOMIC APPROACHES**

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. Stromatolites
2. Cambrian explosion
3. Advantages of bone in vertebrate phylogeny
4. Significance of paedomorphosis in chordate phylogeny
5. Endothermy in dinosaurs
6. Evolutionary significance of Sarcopterygians.
7. What are the threats to the modern amphibian?
8. List out the endangered mammals of India
9. Phylocode
10. E-taxonomy

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Comment on the different hypothesis of metazoan origin
12. What are the evolutionary advantages of symmetry and metamerism?
13. Comment on adaptive radiation in annelids
14. Discuss the affinity of invertebrates and protochordate in vertebrate evolution
15. Explain the importance of skull in reptilian classification
16. Comment on the significance of jaws and hearing in mammalian phylogeny
17. Briefly explain the taxonomic procedure
18. Give an account on the cladistics analysis in systematics

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Comment on the phylogenic relationship among mollusca, annelida and arthropoda
20. Write an essay on reptilian phylogeny and adaptive radiation
21. Explain about the different types of taxonomic publications
22. Write an essay on the use of biomolecules in molecular phylogeny

(2 x 5 =10)

M Sc Zoology Degree (C.S.S) Examination

I Semester

Faculty of Science

ZL010102 EVOLUTIONARY BIOLOGY AND ETHOLOGY

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. What is meant by punctuated equilibrium?
2. Comment on RNA World.
3. Define heterochrony.
4. What is co-evolution?
5. Define key stimuli.
6. What is goal oriented drive?
7. Explain lunar periodicity.
8. Comment on pheromones.
9. Define sociobiology.
10. Differentiate avoidance from tolerance behaviour

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Write down the contributions of Margulis.
12. Explain evolution of prokaryotes
13. Comment on gene pool, gene frequency and Hardy Weinberg law.
14. Give an account on molecular evolution
15. Describe Lorenz's Psycho-hydraulic model of motivation
16. Explain conditioning with example
17. Give an account of navigation cues employed by animals during migration.
18. Discuss about hormones and behaviour.

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Write an essay on isolating mechanisms and speciation.
20. Give an account on various stages in primate evolution.
21. Explain the social organisation in primates.
22. Explain different modes of communication in ants and mammals.

(2 x 5 = 10)

M Sc. Zoology Degree (C.S.S) Examination

Second Semester

Faculty of Sciences

ZL010201 FIELD ECOLOGY

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. Effect of global warming in species phenologies
2. Circadian rhythm and biological clock
3. Comment on mutualistic relationship of human with crops
4. Distinguish between deterministic extinction and stochastic extinction
5. Territoriality
6. Competitive exclusion principle
7. Different types of niches
8. Intraguild predation
9. Risk-sensitive foraging
10. Green technology

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. What are the effect of cold and hot temperature on organisms?
12. Comment on the response of animals to drought and flood
13. Comment on social parasitism
14. Discuss about the hunting tactics and adaptations
15. Write an account on different types of mutualism
16. Explain about antipredator adaptations
17. Comment on water scarcity and water conservation measures
18. What are the sources and effect of soil pollution?

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Discuss the characteristic properties of population
20. Write an essay on animal prey defense in natural ecosystem
21. Give an account on the responses of host to parasitism
22. Explain the biotechnological approaches to waste management

(2 x 5 =10)

M Sc Zoology Degree (C.S.S) Examination

III Semester

Faculty of Science

ZL010204 MICROBIOLOGY AND BIOTECHNOLOGY

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. What is Slime layer?
2. Comment on culture medium.
3. Define quorum sensing.
4. What is YAC?
5. Define microinjection.
6. What is chromosome walking?
7. Explain cell culture.
8. Comment on Nif genes
9. Define nanobiosensors.
10. What is TRIPS.

(8 x 1 = 8)

Section B

(Answer any six questions. Each question carries a weight of 2)

11. Give the general characters and outline classification of bacteria.
12. Describe the bacterial cell wall.
13. Give an account on pure culture techniques.
14. Explain the role of microbes in nutrient cycling.
15. Describe the different methods of gene transfer.
16. Explain the types of PCR. Add a note on its applications.
17. Give a brief account on gene therapy.
18. Discuss about terminator gene technology.

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Write an essay on the various methods of sterilization.
20. Give an account on microbial interactions.
21. Explain the various sequencing methods.
22. Describe any four fermentation products.

(2 x 5 = 10)

M Sc. Zoology Degree (C.S.S) Examination

Fourth Semester

Faculty of Sciences

ZL800401 NUTRITION, GROWTH AND PHYSIOLOGY OF FISHES

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. Balanced food of fishes
2. Classify fish food organism
3. Metabolizable energy in fish nutrition
4. Feed additives
5. Sex reversal in fishes
6. Luminescent organs
7. Aplacentalviviparity
8. Acoustic communication in fishes
9. Hill stream fishes
10. Venomous fishes

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. What are the feeding adaptations of fishes?
12. Comment on the modifications of digestive system with reference to growth
13. Give an account on the vitamin and mineral nutrition in fishes
14. Comment on protein nutrition in fishes
15. Discuss the role of nutrients and hormones in the regulation of growth
16. Comment on brood stock nutrition
17. Explain role of statoacoustic and mechanoreceptors in fishes
18. What are the adaptive mechanisms of fishes in an altered environment?

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Give an account on larval nutrition in fishes
20. Write an essay on anatomy and functions of gastro-intestinal tract in carnivore and herbivore fishes
21. Discuss the role of endocrine system in the reproduction of fishes
22. Explain the communicative and locomotive behavior in fishes with examples

(2 x 5 = 10)

M Sc. Zoology Degree (C.S.S) Examination
Fourth Semester
Faculty of Sciences
ZL800402 Fishery Resource and Management

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. List out the endemic fishes of inland waters in Kerala
2. Fish passes
3. Seaweed fishery
4. Mud bank fishery
5. FIRMA
6. NIFPHATT
7. Composite fish culture
8. Pokkali field
9. Potential fish zone
10. Trawling ban

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Comment on the scope of inland fishery in Kerala
12. What are the methods for the enhancement of fishery productivity in reservoirs?
13. Comment on the status of mangrove fishery in India
14. What are the threats and management aspect of marine biodiversity?
15. Write down the application of remote sensing fishery
16. Give an account on pond fertilization
17. What are the methods of prawn culture?
18. Explain the importance of aquaponics and its benefits

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Write an essay on the estuarine fishery of Kerala
20. Comment on the objectives and activities of Matsyafed
21. Discuss the role of oceanographic factors in fishery production
22. Explain the management aspects of hatcheries and farms

(2 x 5 =10)

M Sc. Zoology Degree (C.S.S) Examination

Fourth Semester

Faculty of Sciences

ZL800403 Fishery Science and Technology

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. GFP transgenic
2. Feed probiotics
3. Freezer burn
4. Bio capsulated feeds
5. Chitin and chitosan
6. Feed mills
7. Recrystallization
8. Aseptic canning
9. Auto sterilization bacteriology
10. Classify fishing harbours

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Comment on the application of biotechnology in gonadial growth and spawning
12. Explain the significance of gene bank in fishery science
13. Discuss the quality of feed ingredients and their biochemical composition
14. Give an account on biomedical and bioactive compounds of marine organisms
15. Explain bycatch reduction devises
16. Comment on the recent advances in fish thawing.
17. What are the various freezing methods?
18. Discuss the plant sanitation and hygiene in processing industry

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Write an essay on the recent trends and approaches in algal technology
20. Explain the principle and mechanism in thermal processing of fishery products
21. Give an account on quality assessment of fish and fishery products
22. Comment on the crafts and gears used for fishing

(2 x 5 =10)

M Sc. Zoology Degree (C.S.S) Examination
Fourth Semester
Faculty of Sciences
ZL830401- General Microbiology and Parasitology
(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. List contributions of Edward Jenner
2. What is the role of sand fly in parasitic infection?
3. What is called as ray fungi? Explain its salient features.
4. Mycolic acid
5. What are chemotrophic bacteria? Give two examples
6. Mode of action of Penicillin
7. Droplet nuclei
8. Exponential phase
9. Antibigram
10. Blue milk

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Phenol coefficient method
12. Chemostat
13. Air borne diseases
14. Difference between gram positive and gram negative bacteria
15. Pathogenesis and disease caused by *Ascaris lumbricoides*
16. Explain different milk quality testing methods.
17. What are the contributions of Louis Pasteur?
18. Explain differential staining technique with respect to acid fast staining.

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Different methods of enumeration of microbes from air
20. Explain the structure, life cycle and pathogenesis of *Entamoeba histolytica*
21. Explain in detail the structure of Cyanobacteria
22. Explain both the sexual and asexual reproduction of fungi.

(2 x 5 = 10)

M Sc. Zoology Degree (C.S.S) Examination
Fourth Semester
Faculty of Sciences
ZL830402- Bacteriology, Virology and Mycology

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. Prophylaxis of communicable diseases
2. General properties of *Neisseria*
3. Pyrexia
4. Chikungunya virus
5. Prion diseases
6. Zoonotic infections
7. Interferons
8. Burst size
9. Cyanophages
10. Lactophenol staining blue technique

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Bacteriophage typing
12. Genomic organization of HIV virus
13. Antifungal agents and their mode of action
14. Pathogenesis and disease caused by *Streptococcus*
15. Immunological and non immunological response of virus infection
16. Bacterial infections of respiratory and gastrointestinal tract
17. Pathogenesis and laboratory infections of *Treponema*
18. Sources and mode of transmission of bacterial infections

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Control of virus infections
20. Pathogenesis of bacterial infections
21. Pathogenesis and diseases caused by oncogenic viruses
22. Systemic mycosis

(2 x 5 = 10)

M Sc. Zoology Degree (C.S.S) Examination

Fourth Semester

Faculty of Sciences

ZL830403- Clinical Microbiology

(2019 admissions onwards)

Time: Three hours

Max. Weight: 30

Section- A

(Answer any **eight** questions. Each question carries a weight of 1)

1. Good Laboratory Practises
2. Enrichment culture
3. Lyophilization
4. Nasopharyngeal swab
5. Standard plate count method
6. Different colony morphology of bacteria
7. Imvic test
8. CPE
9. Superficial mycosis
10. Collection and transport of sputum sample

(8 x 1 = 8)

Section B

(Answer any **six** questions. Each question carries a weight of 2)

11. Explain the detection of viral proteins and viral genetic material
12. Describe the different microbiological safety cabinets
13. Explain the cleaning and sterilization of glassware
14. Explain the processing and microscopical examination of blood, stool and CSF samples
15. Explain the serological diagnosis of viral infections
16. Explain molecular diagnostic methods of microbes
17. Explain the biochemical tests for bacterial infections
18. Explain the legal requirements and humane method of killing animals

(6 x 2 = 12)

Section C

(Answer any **two** questions. Each question carries a weight of 5.)

19. Explain any 2 diagnostic methods of parasitic infection in detail
20. Explain the culturing of viruses
21. Explain the diagnosis of fungal infection
22. Explain the different techniques in the preservation of microbes

(2 x 5 = 10)