D 92512 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. (CUCBCSS—UG) DEGREE [SPECIAL] EXAMINATION, NOVEMBER 2020

Zoology

ZOL 5B 09—GENERAL METHODOLOGY IN SCIENCE, BIOSTATISTICS AND INFORMATICS

Time : Three Hours Maximum : 80 Marks

## Section A (One Word Questions)

*Answer* **all** *questions.*
*Each question carries* 1 *mark.*

1. A common form of deductive reasoning is the ————.
2. In scientific method, a predictive statement about observation that can be tested scientifically is called ————.
3. Facts and figures used to support or disprove hypothesis, theory or law is called ————.
4. The sample that is identical to the experimental sample except for independent variables is ————.
5. The branch of biostatistics that deals with methods of collection, organization and presentation of data is called as ————.
6. The web server on the internet is also known as ————.
7. Property rights protect the use of Information and ideas that are of commercial value.
8. INFLIBNET stands for ————.
9. Assessing Computer without prior authorization is a cybercrime that comes under section ————.
10. Tampering with ———— source documents are non-bailable offence

(10 × 1 = 10 marks)

## Section B (Short Answer Questions)

*Answer at least* **five** *questions.*
*Each question carries* 4 *marks.*
*All questions can be attended.*
*Overall Ceiling* 20.

11. What is auxiliary assumption ?
12. What does PETA stand for ?

**Turn over**

13. Give two advantages of using non-animal alternatives instead of animals in experiments.
14. What are the primary sources of data collection ?
15. Different types in experimental design.
16. What is the application of statistics in biological science ?
17. Short note on testing hypothesis ?
18. What are the principles of IPR ?
19. What is INFLIBNET ?
20. What is cybercrime ?
21. What are the common ethical issues for IT users ?
22. State any two laws related to prevention of cybercrime in India.

(5 × 4 = 20 marks)

## Section C (Paragraph Questions)

*Answer at least* **four** *questions.*
*Each question carries* 7.5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

23. What are the basic steps involving in testing hypothesis ?
24. Give the significance of Intellectual property rights.
25. What are the features of INFLIBNET ?
26. Define cybercrime : give a common example of cybercrime.
27. What are the advantages green computing ?
28. How can information technology be used in health and medicine ?
29. What are the important aspects of statistics ?
30. How E-waste management does contribute to green computing ?

(4 × 7.5 = 30 marks)

## Section D (Essay Questions)

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

31. What is crime detection, investigation and prevention ?
32. What is Hypothetico-deductive model and testing hypothesis ?
33. Explain artificial intelligence and virtual reality.
34. Write the Impact of Managing Electronic Waste to Ensure Green Computing.

(2 × 10 = 20 marks)

**D 92511** (Pages : 3) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE [SPECIAL] EXAMINATION NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5B 08—CELL BIOLOGY AND GENETICS

Time : Three Hours Maximum : 80 Marks

## Section A

*Answer* **all** *questions.*
*Each question carries* 1 *mark.*

1. The sub-units of Prokaryotic ribosome are ———— S and ———— S.
2. Who proposed fluid mosaic model of cell membrane ?
3. Improvement of human functioning and well-being by improvement of living conditions is called ————.
4. Write the chromosomal anomaly of Turner's syndrome.
5. CIB method is used for the detection of ————.
6. An organism that contains both male and female characteristics is termed as ————.
7. Write the stage of meiosis at which terminalization of chiasmata occurs.
8. Mercuric bromophenol blue technique is used for the detection of ————.
9. Name a mounting medium commonly used in histological laboratory.
10. The syndrome associated with the deletion of small arm of human $5^{th}$ chromosome.

(10 × 1 = 10 marks)

## Section B

*Answer at least* **five** *questions.*
*Each question carries* 4 *marks.*
*All questions can be attended.*
*Overall Ceiling* 20.

11. What is Metastasis ?
12. Define resolving power. How does an immersion oil objective increase the resolving power of light microscope ?

**Turn over**

13. What is pleiotropism ? Mention one example.
14. What is erythroblastosis foetalis ?
15. Write short notes on endomitosis.
16. Write short notes on gene therapy.
17. Write short notes on apoptosis.
18. Write short account on polygenic inheritance.
19. Write short notes on epistasis.
20. Give an account on genetic counselling.
21. Write short notes on Lyon hypothesis.
22. What is the use of Scanning Tunneling microscope and name the inventors.

(5 × 4 = 20 marks)

## Section C

*Answer at least* **four** *questions.*
*Each question carries* 7.5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

23. Explain the principle and uses of camera lucida.
24. Give an account on structure and function of mitochondria.
25. Describe polymorphism in Lysosome.
26. What are giant chromosomes and explain the occurrence, structure and significance of lamp brush chromosomes.
27. With suitable example explain the inheritance of multiple alleles.
28. What is genetic counseling and critically evaluate the importance of genetic counseling.
29. Give short notes on any *four* autosomal anomalies found in man.
30. Explain the chromosomal mechanism of sex determination.

(4 × 7.5 = 30 marks)

## Section D

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

31. With suitable diagram explain the structure and function of nucleus.

32. Write an essay on the cytogenetics of cancer.

33. Give a detailed account on chromosome mutation. Add a note on mutagens.

34. What is linkage? Explain Morgan's contributions towards the study of linkage. Add a note on the factors influencing linkage and crossing over.

(2 × 10 = 20 marks)

D 92510 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE (SPECIAL) EXAMINATION NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5B 07—ETHOLOGY, EVOLUTION AND ZOOGEOGRAPHY

Time : Three Hours Maximum : 80 Marks

## Section A (One Word Questions)

*Answer* **all** *questions.*
*Each question carries* 1 *mark.*

1. Name any *one* branch of Ethology.
2. Mention the stimulus that elicits fixed action pattern.
3. Name the definite tracks used by elephants to move from one forest range to another.
4. Who put forward the theory of inheritance of acquired characters ?
5. Cite an example for bipolar distribution.
6. Name an oceanic island.
7. Mention the zoogeographic realm in which marsupials are abundant.
8. Name the connecting link between Reptilia and Aves.
9. Mention one example for living fossil.
10. Give an example for biological barrier.

(10 × 1 = 10 marks)

## Section B (Short Answer Questions)

*Answer at least* **five** *questions.*
*Each question carries* 4 *marks.*
*All questions can be attended.*
*Overall Ceiling* 20.

11. What is circadian rhythm ?
12. Write briefly on imprinting.
13. Explain the theory of panspermia.
14. What is Cambrian explosion ?
15. Comment on the major factors that upset Hardy-Weinberg Equilibrium.

**Turn over**

16. Explain mutation theory.

17. What is Neo-Darwinism ?

18. Distinguish between cline and deme.

19. What are the major features of insular fauna ?

20. Explain discontinuous distribution.

21. Comment on the significance of mutations in evolution.

22. What is pre-adaptation ? Give one example

(5 × 4 = 20 marks)

## Section C (Paragraph Questions)

*Answer at least* **four** *questions.*
*Each question carries* 7.5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

23. Explain adaptive radiation with the help of suitable examples.

24. What is conditioned reflex ? Discuss the classical studies on it and the results.

25. Explain the concept of genetic drift. What is its evolutionary significance ?

26. Describe the various factors affecting animal distribution.

27. Explain the theory of punctuated equilibrium and its relevance in evolution.

28. Explain fossilization and fossil dating.

29. Describe the process of allopatric speciation.

30. Explain Darwin's theory of natural selection.

(4 × 7.5 = 30 marks)

## Section D (Essay Questions)

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

31. Write an essay on biochemical origin of life.

32. Explain the evolution of modern man based on fossil evidences.

33. Explain isolation and isolating mechanisms.

34. Discuss the major evidences for organic evolution.

(2 × 10 = 20 marks)

D 92509 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE (SPECIAL) EXAMINATION NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5B 06—ENVIRONMENTAL BIOLOGY, WILDLIFE CONSERVATION AND TOXICOLOGY

Time : Three Hours Maximum : 80 Marks

## Section A

*Answer* **all** *questions.*
*Each question carries* 1 *mark.*

1. What is LC50 ?
2. What is cryopreservation ?
3. What is an endemic species ?
4. Mention a bird sanctuary in Kerala.
5. What is a territory ?
6. What is an ecological niche ?
7. What is nitrification ?
8. What is vital index ?
9. What is edge effect ?
10. Define wetland.

(10 × 1 = 10 marks)

## Section B

*Answer at least* **five** *questions.*
*Each question carries* 4 *marks.*
*All questions can be attended.*
*Overall Ceiling* 20.

11. What are Xenobiotics ?
12. Write briefly on IUCN.

13. Whatis a Protected Area ? Mention two categories of Protected Area.
14. Write briefly on Elephant Reserves.
15. Expand UNEP.
16. Mention the ecological impacts of tourism.
17. Write on herbivory.
18. What is Berlese Funnel method.
19. Write a brief note on predation.
20. What is an ecotone ? Mention its ecological significance.
21. Write briefly on age pyramids.
22. Explain chemosynthesis.

(5 × 4 = 20 marks)

## Section C

*Answer at least* **four** *questions.*
*Each question carries 7½ marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

23. Write on energy flow and energetics of ecosystem.
24. Explain different positive interactions of populations.
25. Comment on population growth curves.
26. Write on various aspects of ecological succession.
27. Explain different sampling methods of animal populations.
28. Explain the concept of biodiversity hot spots. Write on hot spots of Indian origin.
29. Write on the methods of conservation of biodiversity.
30. Elaborate on the threats to biodiversity.

(4 × 7½ = 30 marks)

## Section D

*Answer any* **two** *question.*
*Each question carries* 10 *marks.*

31. Explain the basic concepts of biogeochemical cycle.Citing an example explain gaseous cycle.
32. Write a critical account on different ecological tools and techniques.
33. Write on the various global initiatives for conservation.
34. Explain the concept of limiting factor. Write on the various laws of limiting factors.

(2 × 10 = 20 marks)

D 90281 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5D 02—NUTRITION, HEALTH AND HYGIENE

Time : Two Hours Maximum : 40 Marks

## Part A (One Word Questions)

*All questions to be attended.*
*Each question carries* 1 *mark.*

1. Write the secretion of liver which helps in digestion process.
2. Name a pervasive developmental disorder.
3. Write an eating disorder characterized by intense fear of gaining weight.
4. Name a fat soluble vitamin.
5. Write a natural food toxin of plant origin.
6. Give one protein deficiency disorder.
7. Name the condition in which abnormal cells divides uncontrollably and destroy body tissues.
8. Mention a phase of vomiting.
9. Name an enzyme secreted by human salivary gland.
10. Give a source of fibrous food.

(10 × 1 = 10 marks)

## Part B (Short Answer Questions)

*All questions can be attended and overall ceiling.*
*Each question carries* 2 *marks.*

11. What are the principles of exercise programme ?
12. Enlist the significance of breast feeding.
13. Differentiate hypotension and hypertension.
14. Briefly explain different feeding habits.
15. Write a note on the pathogenicity of Entamoeba hystolytica.

16. List out the importance of oral hygiene.

17. Give a brief account on the diseases transmitted by *Aedes* mosquitoes.

(5 × 2 = 10 marks)

## Part C (Paragraph Questions)

*All questions can be attended and overall ceiling.*
*Each question carries 5 marks.*

18. Describe different methods of food processing.

19. Differentiate communicable and non-communicable diseases with suitable examples.

20. Discuss the procedure of first aid for snake bite. Add a note on the identification of poisonous and non- poisonous snakes from the bite mark.

(2 × 5 = 10 marks)

## Part D (Essay Questions)

*All questions can be attended and overall ceiling.*
*The question carries 10 marks.*

21. What are the different types of alcoholic beverages ? Discuss the physiological effects of alcoholism.

22. Explain the importance of nutrition during infancy.

(1 × 10 = 10 marks)

D 90280 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5D 01—REPRODUCTIVE HEALTH AND SEX EDUCATION

Time : Two Hours Maximum : 40 Marks

## Part A (One Word)

*All questions to be attended.*
*Each carries 1 mark.*

1. Which is the causative bacteria of syphilis ?
2. Name the surgical procedure for male sterilization.
3. Name an imaging technique which uses magnetic fields and radio waves.
4. Give a natural fertility control method.
5. Sexual and romantic desire between females is known as ————.
6. Name the condition in which two offsprings are produced from a single zygote.
7. Name a protozoan venereal disease.
8. Give a STD which is transmitted mainly through skin contact.
9. What is the main component of combined oral contraceptive pill ?
10. Write the laboratory diagnostic method to detect proteins ?

(10 × 1 = 10 marks)

## Part B (Short Answer)

*All questions can be attended and overall ceiling.*
*Each question carries 2 marks.*

11. Briefly explain Zygote Infrafallopian Transfer procedure.
12. What is heterogametic sex ?
13. Give a brief account on concordant and discordant pairs.
14. Differentiate invasive and non-invasive prenatal diagnostic methods.

15. What are the different types of child abuse ?

16. Enlist the importance of barr body.

17. Write down the clinical symptoms of genital herpes.

(5 × 2 = 10 marks)

## Part C (Paragraph)

*All questions can be attended and overall ceiling.*
*Each question carries 5 marks.*

18. Explain the causes of infertility in female.

19. Write an account on EEG and ECG.

20. Explain any *two* chromosomal anomalies.

(2 × 5 = 10 marks)

## Part D (Essays)

*All questions can be attended and overall ceiling.*
*Each question carries* 10 *marks.*

21. Discuss the common therapeutic procedures in health care.

22. Explain the symptoms, mode of transmission, diagnosis, treatment and prophylaxis.

(1 × 10 = 10 marks)

D 90279 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5B 09—GENERAL METHODOLOGY IN SCIENCE, BIOSTATISTICS AND INFORMATICS

Time : Three Hours Maximum : 80 Marks

## Part A

I. One Word Questions. Answer *all* questions. Each question carries 1 mark :

1 Philosophical teaching of the theory of knowledge is ————————.

2 A testable generalization based on previous knowledge is ————————.

3 Testing a hypothesis by using computer models is ————————.

4 The value of the variable which occurs most frequently in a distribution is ————————.

5 ———————— is a representative fraction of a population.

6 The unprocessed freshly collected data is called ————————.

7 ———————— is the portal site for biological information.

8 ———————— is a code of behaviour for using the internet.

9 ———————— is a computing industry standard for the consistent encoding, representation and handling of text expressed in most of the world's writing systems.

10 ———————— is the use or application of computational devices in the field of biological sciences and research.

(10 × 1 = 10 marks)

## Part B

II. Short Answer Questions. Answer at least *five* questions. Each question carries 4 marks. All questions can be attended. Overall Ceiling 20 :

11 What is scientific attitude ?

12 Briefly explain methods in scientific enquiry.

13 Write notes on peer review.

Turn over

14 Explain the importance of models and simulations.

15 Explain the importance of selection of controls in the design of experiment.

16 Briefly explain the role of statistics in life science.

17 What is sampling error ?

18 What is *t*-test ?

19 Explain briefly on plagiarism.

20 What is information overload ? Mention its demerits.

21 What is green computing ?

22 What is virtual reality ?

(5 × 4 = 20 marks)

## Part C

III. Paragraph Questions. Answer at least *four* questions. Each question carries 7.5 marks. All questions can be attended. Overall Ceiling 30 :

23 Give an account on major steps involved in scientific methods.

24 Explain different thought processes in developing hypothesis.

25 Explain different methods of sampling.

26 Briefly explain graphic presentation of data.

27 What is test of significance ? Briefly explain the significance of statistical tools in data interpretation.

28 Explain the different internet access methods.

29 Explain cyber laws.

30 Briefly explain the impact of I.T. on language and culture.

(4 × 7.5 = 30 marks)

## Part D

IV. Essay Questions. Answer any *two* questions. Each question carries 10 marks :

31 What is Hypothesis ? What are the different types of hypothesis ? Explain the formulation and testing of hypothesis.

32 Write an essay on the different types of measures of central tendency. Explain the merits and demerits of each.

33 Give a detailed account on INFLIBNET, NICNET and BRNET.

34 Explain the use of I.T. in teaching and learning process.

(2 × 10 = 20 marks)

D 90278 (Pages : 3) Name.....

Reg. No.....

# FIFTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5B 08—CELL BIOLOGY AND GENETICS

Time : Three Hours Maximum : 80 Marks

## Section A

*Answer* **all** *questions.*
*Each question carries* 1 *mark.*

1. Lamp brush chromosomes were first described by ————.
2. Folds of internal membrane of mitochondria are called ————.
3. Neither allele is dominant nor recessive and both the alleles get expressed. This condition is known as ————.
4. The science of making phenotypic improvements to humans after birth is ————.
5. Changes in the chromosome number due to the addition or loss of a chromosome is called ————.
6. Number of linkage groups in human male is ————.
7. Type of cancer that begins from the epithelial tissue.
8. Movement of solute molecules from higher concentration to lower concentration is termed as ————.
9. Malignant tumor of connective tissue is termed as ————.
10. Number of Barr bodies in a normal male is ————.

(10 × 1 = 10 marks)

## Section B

*Answer at least* **five** *questions.*
*Each question carries* 4 *marks.*
*All questions can be attended.*
*Overall Ceiling* 20.

11. Differentiate prokaryotic and eukaryotic ribosome.
12. Differentiate euploidy and aneuploidy.

13. Differentiate constitutive and facultative heterochromatin. Mention one example each.

14. Write the chromosomal anomaly and abnormal phenotype features of Klinefelter's syndrome.

15. What is micrometry ?

16. What is quantitative inheritance ? Give one example.

17. Describe the unit membrane model of plasma membrane.

18. Write the causes of black urine disease.

19. What is synapsis ?

20. Write short notes on genic balance theory of sex determination.

21. Write short notes on congenital hydrocephalus.

22. Define chromosome theory of linkage.

(5 × 4 = 20 marks)

## Section C

*Answer at least* **four** *questions.*
*Each question carries* 7.5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

23. Give an account on the common fixatives used in a biological laboratory.

24. With suitable diagram describe the fluid mosaic model of plasma membrane.

25. What are giant chromosomes and explain the structure of polytene chromosome.

26. Describe the structure, chemical composition and functions of prokaryotic and eukaryotic ribosome.

27. What is criss-cross inheritance and explain the inheritance of colour blindness in humans.

28. With suitable example, explain : (i) sex influenced traits ; (ii) sex-limited traits.

29. Explain the mechanism of crossing over and recombination.

30. Explain allelic gene interaction with suitable example.

(4 × 7.5 = 30 marks)

## Section D

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

31. With suitable diagram describe the various stages of meiosis. Mention the significance of meiosis.

32. Describe the morphology, chemical composition and structural organization of chromosome.

33. What are multiple alleles and explain the inheritance of multiple alleles with reference to coat colour of rabbit and inheritance of blood group allele in man ?

34. Define mutation and explain the different types of gene mutation and the molecular basis of gene mutation. Add a note on the factors influencing mutations.

(2 × 10 = 20 marks)

D 90277 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Zoology

ZOL 5B 07—ETHOLOGY, EVOLUTION AND ZOOGEOGRAPHY

Time : Three Hours Maximum : 80 Marks

## Part A

I. One Word Questions. Answer *all* questions. Each question carries 1 mark :

1 Name the geological period which is known as the 'golden age of reptiles'.

2 Give example for a post zygotic isolating mechanism.

3 Name a living fossil.

4 Sum total of genes in an interbreeding population is called ————————.

5 Who proposed mutation theory ?

6 Give example for analogous structure.

7 Name one oceanic island.

8 Name the zoogeographic region where humans originated.

9 Random fluctuations in gene frequencies from generation to generation is called ————————.

10 Name the connecting link between reptiles and birds.

(10 × 1 = 10 marks)

## Part B

II. Short Answer Questions. Answer at least *five* questions. Each question carries 4 marks. All questions can be attended. Overall Ceiling 20 :

11 Explain the features of Australopithecus.

12 What is the significance of mutation in evolution ?

13 What are vestigeal structures ?

14 Explain biological barriers of distribution.

Turn over

15 What is $^{14}C$ dating ?

16 What is discontinuous distribution ?

17 Comment on the evolution of Amphibians.

18 Explain Hardy-Weinberg principle.

19 Explain phylogenetic tree.

20 Distinguish between habitat isolation and seasonal isolation.

21 What is insight learning ?

22 Explain the role of pheromones in social behaviour.

(5 × 4 = 20 marks)

## Part C

III. Paragraph Questions. Answer at least *four* questions. Each question carries 7.5 marks. All questions can be attended. Overall Ceiling 30 :

23 Explain migration and navigation in birds.

24 Briefly describe geological time chart.

25 Analyse Lamarck's contribution to evolution.

26 Explain the process of fossilisation.

27 Explain the theory of punctuated equilibrium.

28 Discuss the faunal characteristics of Ethiopean region.

29 Explain embryological evidences of evolution.

30 Explain adaptive radiation with the help of suitable example.

(4 × 7.5 = 30 marks)

## Part D

IV. Essay Questions. Answer any *two* questions. Each question carries 10 marks :

31 Explain biochemical origin of life.

32 Explain Darwin's contribution to evolution. Write notes on criticisms against Darwinism.

33 Give an account on different types of speciation.

34 Write an account on innate behaviour and its major components.

(2 × 10 = 20 marks)

D 90276 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Zoology

## ZOL 5B 06—ENVIRONMENTAL BIOLOGY, WILDLIFE CONSERVATION AND TOXICOLOGY

Time : Three Hours Maximum : 80 Marks

### Section A

*Answer* **all** *questions.*
*Each question carries* 1 *mark.*

1. State the Indian Law of Drugs and Poisons.
2. What is a seed bank ?
3. Comment on Red Data Book.
4. What are sacred groves ?
5. Define Habitat.
6. What is a home range ?
7. What are age pyramids ?
8. State Competition Exclusion Principle.
9. What is xerarch ?
10. What is a sedimentary cycle ?

(10 × 1 = 10 marks)

### Section B

*Answer at least* **five** *questions.*
*Each question carries* 4 *marks.*
*All questions can be attended.*
*Overall Ceiling* 20.

11. Comment on botulism.
12. Mention the salient features of Indian Wild Life (Protection) Act, 1972.
13. Write on Earth Summit, 1992.
14. Write briefly on Bio-diversity Act, 2002.
15. Explain Simpsons' Dominance Index.
16. Write briefly on Commensalism.

**Turn over**

17. Mention the ecological consequences of clay mining.
18. What is an ecotone ? Mention its ecological significance.
19. Write on the combined concept of limiting factors.
20. Explain nitrogen fixation.
21. What is chemosynthetic energy production ?
22. Write on the applications of remote sensing in ecological studies.

(5 × 4 = 20 marks)

## Section C

*Answer at least* **four** *questions.*
*Each question carries* 7.5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

23. Write on different kinds of negative interactions of populations.
24. Explain Shelford's Law of Tolerance.
25. Explain carbon cycle.
26. Write on different sampling methods of animal populations.
27. Comment on destruction of wetland habitats and their consequences.
28. What is a biosphere reserve ? Write on *two* biosphere reserves in Kerala.
29. Explain the methods of conservation of biodiversity.
30. Elaborate on the threats of biodiversity.

(4 × 7½ = 30 marks)

## Section D

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

31. Explain various characteristics of community.
32. Write a critical account on properties of population.
33. Elaborate on ecosystem energetics.
34. Write on various conservation projects undertaken in India.

(2 × 10 = 20 marks)

D 10715 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5D 03T—APPLIED ZOOLOGY

(2019 Admissions)

Time : Two Hours Maximum : 60 Marks

## Section A

*Answer at least* **eight** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 24.

1. Write a brief note on *Oryctes rhinoceros*.
2. Comment on Anthrax.
3. What is vermiwash ? Explain its importance.
4. Define polyembryony. Give an example.
5. Write a note on embryo transfer technology.
6. Differentiate exotic and indigenous breeds of poultry with examples.
7. Write a brief note on commensalism. Give an example.
8. Define induced breeding in pisciculture. Mention any *two* types of induced breeding methods.
9. Comment on the nature of damage caused by *Callosobruchus chinensis*.
10. Explain the structure of scolex in *Taenia solium*.
11. What is nacre ?
12. Define IPM.

(8 × 3 = 24 marks)

## Section B

*Answer at least* **five** *questions.*
*Each question carries* 5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 25.

13. Explain the life cycle of *Entamoeba hystolytica* with suitable diagrams.
14. Write a short note on poultry housing.
15. Define apiculture. Write down in detail the various adaptations of worker bees.
16. Write a note on the nature of damage caused and control measures of *Leptocorisa acuta.*
17. Explain in brief any two methods of mussel culture with suitable diagrams.
18. Comment on any two ectoparasitic insects focusing on their habits and diseases caused.
19. Describe the steps involved in artificial insemination.

(5 × 5 = 25 marks)

## Section C

*Answer any* **one** *question.*
*The question carries* 11 *marks.*

20. Define sericulture. Write down in detail the various steps in Sericulture.
21. Explain in detail the various types of chemical control measures in insect pest management.

(1 × 11 = 11 marks)

D 10714 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5D 02T—NUTRITION, HEALTH AND HYGIENE

(2019 Admissions)

Time : Two Hours Maximum : 60 Marks

## Section A (Short Answer Questions)

*Answer at least* **eight** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 24.

1. Define Health.
2. Explain the role of fat in the causing atherosclerosis.
3. Enlist the functions of ascorbic acid in human body.
4. What are Antioxidants ? Explain their role in the body.
5. Enumerate the importance of oral health.
6. Add a note on the influence of food industry and media on food selection.
7. Which are the foods allowed and avoided in low residue diet ?
8. Mention the recommended calcium and iron requirements for expectant mothers.
9. Describe the role of sunlight in the synthesis of Vitamin D.
10. Explain the significance of polyvalent snake antivenom administration.
11. Briefly explain the benefits of cycling and walking in body fitness.
12. Differentiate malnutrition and under nutrition.

(8 × 3 = 24 marks)

## Section B (Paragraph Questions)

*Answer at least* **five** *questions.*
*Each question carries* 5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 25.

13. Give an account on different types of PEM.
14. Write on the therapeutic nutrition during hypertension and diabetes mellitus.
15. Discuss the factors affecting basal metabolic rate.
16. Briefly explain the first aid management for insect sting.
17. What is Taeniasis ? Add notes on the clinical presentation and treatment.
18. Describe the composition and effects of tobacco smoke.
19. Explain the importance of micronutrients in diet.

(5 × 5 = 25 marks)

## Section C (Essay Questions)

*Answer any* **one** *question.*
*The question carries* 11 *marks.*

20. Explain the mechanism of digestion and absorption of proteins.
21. Write an essay on any *four* non-communicable diseases.

(1 × 11 = 11 marks)

**D 10713** (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5D 01T—REPRODUCTIVE HEALTH AND SEX EDUCATION

(2019 Admissions)

Time : Two Hours Maximum : 60 Marks

## Section A (Short Answer Questions)

*Answer at least* **eight** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 24.

1. What is Klinefelter syndrome ? Explain.
2. Define reproductive health.
3. Comment on the functions of placenta.
4. Define oogenesis.
5. Comment on embryo transfer.
6. Write a short note on test tube babies.
7. Comment on PNDT Act.
8. What is periodic abstinence ?
9. What is Trichomonal Vaginitis ? Add a note on its treatment.
10. What is POCSO Act 2012 ?
11. Briefly mention the importance of sexual hygiene.
12. Comment on premarital and post marital sex.

(8 × 3 = 24 marks)

## Section B (Paragraph Questions)

*Answer at least* **five** *questions.*
*Each question carries* 5 *marks.*
*All questions can be attended.*
*Overall Ceiling* 25.

13. Discuss on Assisted Reproductive Technology.
14. What is cybersex ? Add a note on the affects of cybersex addiction on the family ?

**Turn over**

15. Discuss on gender discrimination in family and society.

16. Explain various sex determination methods.

17. How is HIV transmitted ? Add a note on its preventive measures.

18. Briefly explain menstrual cycle and its regulation in human.

19. Explain various methods used for prenatal diagnosis.

(5 × 5 = 25 marks)

## Section C (Essay Questions)

*Answer any* **one** *question.*
*The question carries* 11 *marks.*

20. Discuss various types of fertility control methods.

21. Explain male reproductive system. Add a note on spermatogenesis.

(1 × 11 = 11 marks)

D 10712 (Pages : 3) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5B 09T—METHODOLOGY IN SCIENCE, BIOSTATISTICS AND BIOINFORMATICS

(2019 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

## Section A (Short Answer Questions)

*Answer at least* **ten** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

1. Comment on CLUSTAL W.
2. What is cheminformatics ?
3. Define Microarray. Mention any *two* of its applications.
4. Give a short account on structure databases with examples.
5. Distinguish between cladistics and ontology.
6. What is Empiricism in science ?
7. Explain the importance of controls in an experiment.
8. What is peer review ? Comment on its importance in publication.
9. Write notes on secondary depository of scientific information.
10. Comment on Plagiarism.
11. Comment on interdisciplinary approach in science.
12. Expand CPCSEA and comment on it.
13. Write down the characteristic features of normal distribution curve.
14. Distinguish between Skewness and Kurtosis.
15. Explain probability sampling.

(10 × 3 = 30 marks)

**Turn over**

## Section B (Paragraph Questions)

*Answer at least* **five** *questions.*
*Each question carries* 6 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

16. Briefly explain database search engines with examples.

17. What is a metabolic database ? Explain with examples and comment on its applications.

18. Briefly explain any two primary protein sequence databases.

19. Explain pair wise sequence alignment with examples.

20. Explain the importance of units and dimensions in experimentation.

21. What is virtual testing ? Comment on its importance in experiments.

22. Define an Ogive. Draw a cumulative frequency curve for the following data :

| Interval | Frequency |
|---|---|
| 10–19 | 4 |
| 20–29 | 1 |
| 30–39 | 1 |
| 40–49 | 3 |
| 50–59 | 14 |
| 60–69 | 20 |
| 70–79 | 22 |
| 80–89 | 2 |
| 90–99 | 2 |

23. Define mean, median and mode. Calculate mean for the following data :

28, 32, 45, 54, 60, 61, 70, 63, 70, 72, 76, 54, 63, 76, 32, 54, 60, 45, 72, 98

(5 × 6 = 30 marks)

## Section C (Essay Questions)

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

24. What are primary and secondary databases ? Explain in detail.

25. Explain Sanger's DNA sequencing method in detail. Add a note on the applications of DNA sequencing.

26. Explain the major steps in scientific methods.

27. Explain in detail about the different methods in presentation of data.

(2 × 10 = 20 marks)

**D 10711** (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5B 08T—BIOCHEMISTRY AND MOLECULAR BIOLOGY

(2019 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

## Section A (Short Answer Questions)

*Answer atleast* **ten** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

1. What are Aldoses ? Mention example.
2. Define Mutarotation.
3. Write briefly on Isoelectric Point.
4. What is PAGE ? Write any *two* applications of PAGE.
5. Comment on Prostaglandins.
6. Write a note Gluconeogenesis.
7. What is cAMP ? Write its function.
8. Write a note on central Dogma.
9. What are House Keeping Genes ?
10. Draw the secondary structure of tRNA.
11. What is Wobble Hypothesis ?
12. Write the role of Molecular Chaperones.
13. Comment on siRNAs.
14. What are Cryptic Genes ?
15. Differentiate between Mono and Polycistronic Transcription Units.

(10 × 3 = 30 marks)

**Turn over**

## Section B (Paragraph Questions)

*Answer atleast* **five** *questions.*
*Each question carries* 6 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

16. What are Carbohydrates ? Classify Carbohydrates with examples.
17. Comment on different structural levels of Protein.
18. Explain the Beta oxidation of fatty acids.
19. Enlist the salient features of Watson—Crick model of DNA.
20. What is Genetic Code ? Explain the properties of Genetic Code.
21. What are hnRNA ? Write a brief account on capping, tailing and splicing.
22. Comment on Operon model of Gene regulation.
23. Briefly explain the Lytic and Lysogenic cycle.

(5 × 6 = 30 marks)

## Section C (Essay Questions)

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

24. What are Enzymes ? Classify Enzymes. Explain the mechanism of Enzyme action.
25. Describe the process of Glycolysis.
26. Explain the mechanism of replication of DNA.
27. Explain various steps in Translation.

(2 × 10 = 20 marks)

**D 10710** (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5B 07T—BIOTECHNOLOGY, MICROBIOLOGY AND IMMUNOLOGY

(2019 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

## Section A (Short Answer Questions)

*Answer at least* **ten** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

1. What is agglutination inhibition reaction ?
2. What are T- cells and NK- cells ?
3. What is negative staining ?
4. What are ADCC ?
5. Comment on knockout mice.
6. What are viral vaccines ?
7. Differentiate between primary and secondary immunodeficiency diseases.
8. What is somatic cell fusion ?
9. What are tumor antigens ?
10. Give an account of Bioinsecticides.
11. What is Syphilis ? What is the causative organism?
12. What is Electroporation ?
13. Distinguish between archaebacteria and eubacteria.
14. What is anti-retroviral therapy ?
15. What is Lyophilisation ?

(10 × 3 = 30 marks)

**Turn over**

## Section B (Paragraph Questions)

*Answer at least* **five** *questions.*
*Each question carries* 6 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

16. Explain the molecular diagnostic technique of Sickle cell anemia ?
17. Give a brief account of any *two* bacterial diseases in human being.
18. What is Hashimoto's thyroiditis ?
19. Distinguish between dengue and chikungunya.
20. How VNTR's and SNPs are useful in contemporary world ?
21. What is Bruton's disease ?
22. Give an account of culture preservation techniques.
23. What are transplantation antigens ?

(5 × 6 = 30 marks)

## Section C (Essay Questions)

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

24. Briefly explain the transfection methods involved in the production of Transgenic animals.
25. Give an account of Vectors involved in rDNA technology.
26. Briefly explain the types of Immunity.
27. Give an account of normal microflora of human body.

(2 × 10 = 20 marks)

**D 10709** (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Zoology

ZOL 5B 06T—CELL BIOLOGY AND GENETICS

(2019 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

## Section A (Short Answer Questions)

*Answer at least* **ten** *questions.*
*Each question carries* 3 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

1. Write note on functions of lysosome.
2. Define Atavism.
3. What are vital stains ?
4. What is Isoallele ?
5. Comment on euchromatin.
6. What is Lyon hypothesis ?
7. What are fixatives ?
8. Write on TDF.
9. Write note on uses of atomic force microscope.
10. Explain genic balance theory.
11. Explain unit membrane concept.
12. Comment on mutagenic agents.
13. Comment on Endomitosis.
14. Write short note on Down's syndrome.
15. Comment on Eugenics.

(10 × 3 = 30 marks)

**Turn over**

## Section B (Paragraph Questions)

*Answer at least* **five** *questions.*
*Each question carries* 6 *marks.*
*All questions can be attended.*
*Overall Ceiling* 30.

16. Explain various types of trans-membrane mechanisms.
17. Write on role of sex chromosome mutations in diseases.
18. Describe structure and functions of microfilaments.
19. Write notes on chromosome mutations.
20. Write a note on extracellular matrix and their component ?
21. How hormones influence sex determination in animals ?
22. Write on organisation of eukaryotic chromatin.
23. Briefly explain epistasis with examples.

(5 × 6 = 30 marks)

## Section C (Essay Questions)

*Answer any* **two** *questions.*
*Each question carries* 10 *marks.*

24. Write an essay on Cell cycle events and mechanism of regulation.
25. Briefly describe sex-linked characters with suitable examples.
26. Describe the role of various cell adhesion molecules.
27. Elaborate the genetics of blood groups of human with suitable example.

(2 × 10 = 20 marks)

**D 10281** (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS–UG)

Zoology

ZOL 5D 02—NUTRITION, HEALTH AND HYGIENE

Time : Two Hours Maximum : 40 Marks

## Part A (One Word Questions)

I. Answer *all* questions. Each question carries 1 mark.

1 Mention the silent disease that leads to bone deterioration.

2 Which is the infective stage of *Entamoeba histolytica* ?

3 Write an enzyme secreted by stomach.

4 Write any one fermented food product.

5 Name a sexually transmitted viral disease.

6 Name the type of cancer derived from epithelial cells.

7 Write an over-nutritional disorder.

8 Give one protein deficiency syndrome.

9 Which is the major potent carcinogen in tobacco smoke ?

10 Name any one non- communicable disease.

(10 × 1 =1 0 marks)

## Part B (Short Answer Questions)

II. Answer any *five* questions. Each question carries 2 marks.

11 Name the five major components of food.

12 What is dyslexia ?

13 Write a note on the dietary considerations for constipation.

14 Give a short note on the biological control of mosquitoes.

15 Differentiate haemotoxic and neurotoxic venom.

16 Differentiate active and passive smoking.

17 Briefly explain the first aid procedure for burns.

(5 × 2 =10 marks)

**Turn over**

## Part C (Paragraph Questions)

III. Answer any *two* questions. Each carries 5 marks :

18 Explain the nutritive value of human milk.

19 Discuss any two disorders of blood vascular system.

20 Describe the ill effects of self medication.

(2 × 5 = 10 marks)

## Part D (Essay Questions)

IV. Answer any *one* question. The question carries 10 marks.

21 Explain the mode of infection, pathogenicity and prophylaxix of *Taenia solium*.

22 Explain food adulteration. Discuss different types of adulterants with suitable examples.

(1 × 10 = 10 marks)

D 10280 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Zoology

## ZOL 5D 01—REPRODUCTIVE HEALTH AND SEX EDUCATION

Time : Two Hours Maximum : 40 Marks

### Part A

I. One Word Questions. Answer *all* questions. Each question carries 1 mark :

1 Which is the causative agent of Trichomoniasis ?

2 Give a non-invasive prenatal diagnostic method.

3 Which is the imaging technique used to visualize internal blood vessels of heart ?

4 Name the XO chromosomal condition.

5 Write a legal surgical fertility control procedure performed in males.

6 What do you call the sexual attraction or behavior between members of same gender ?

7 Which is the common treatment procedure recommended for low sperm motility ?

8 Which type of hepatitis virus spreads through semen ?

9 Name the imaging technique which produces a cross sectional 3D image.

10 What is the non-surgical procedure used to examine the digestive tract of humans ?

(10 × 1 = 10 marks)

### Part B

II. Short Answer Questions. Answer any *five* questions. Each question carries 2 marks :

11 What is an abnormal super female ?

12 What are the important spreading modes of STDs ?

13 What is Haemodialysis ?

14 Briefly explain the role of Y chromosome in humans.

15 What is the purpose of an EEG test ?

16 How monozygotic twins differ from dizygotic twins ?

17 Differentiate autosomes and sex chromosomes.

(5 × 2 = 10 marks)

## Part C

III. Paragraph Questions. Answer any *two* questions. Each question carries 5 marks :

18 Discuss two laboratory diagnosis methods of HIV infection.

19 Give a brief account on genital herpes.

20 Explain in vitro fertilization. Add a note on its success rate and its disadvantages.

(2 × 5 = 10 marks)

## Part D

IV. Essay Questions. Answer any *one* question. The question carries 10 marks :

21 Explain different methods of fertility control.

22 Write an essay on any two sexually transmitted diseases of bacterial origin.

(1 × 10 = 10 marks)

D 10279 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Zoology

ZOL 5B 09—GENERAL METHODOLOGY IN SCIENCE, BIOSTATISTICS AND INFORMATICS

Time : Three Hours Maximum : 80 Marks

## Part A

I. One Word Questions. Answer *all* questions. Each carries 1 mark :

1 Investigating the casual relationships among variables is ————.

2 ———— is the explanations proposed by scientists based on the evidence from their work.

3 Supplementary hypothesis constructed for testing a scientific proposition is ————.

4 ———— is a form of intellectual property.

5 ———— is any characteristic, number, or quantity thatcan be measured or counted.

6 ———— is the entire pool from which a statistical sample is drawn and are grouped together by a common feature.

7 World's largest scholarly, multidisciplinary full text database is ————.

8 ———— is a recorded programme that can be downloaded from the internet and listened to on an MP3 player.

9 Satellite based nation-wide computer communication network is ————.

10 Any kind of physical harm done to the computer of any person is called ————.

(10 × 1 = 10 marks)

## Part B

II. Short Answer Questions. Answer any *ten* questions. Each carries 2 marks :

11 What is scientific evidence ?

12 What is section 17.1 (d) ?

13 What is deductive reasoning ? List its advantages.

14 What is repeatability and replication ?

**Turn over**

15 What is meant by models in science ? List any two roles of models.

16 What is goodness of fit ? Give an example.

17 What is meant by measures of central tendency ? List the different types.

18 What is tabulation ?

19 What is ISDN ?

20 Give an account on open access initiatives.

21 Explain basic concepts of IPR.

22 Write an account on the applications of artificial intelligence.

(10 × 2 = 20 marks)

## Part C

III. Short Answer Questions. Answer any *five* questions. Each carries 6 marks :

23 What is experimentation ? Explain different types and how to design an experiment.

24 Explain the difference between null hypothesis and alternate hypothesis.

25 Explain different types of diagrammatic presentation of data.

26 Explain internet as a knowledge repository. Also, explain the different internet access methods.

27 Explain different academic search techniques.

28 Explain in detail any three threats in IT field.

29 Explain cybercrime.

30 Briefly explain the application of IT in medicine and healthcare.

(5 × 6 = 30 marks)

## Part D

IV. Essay Questions. Answer any *two* of the following. Each carries 10 marks :

31 Write a detailed account on major steps involved in scientific methods.

32 Explain different types of sampling methods used in biostatistics. Mention merits and demerits of each.

33 Write an essay on the new opportunities and new threats in IT industry.

34 Explain IT application in weather forecasting and education.

(2 × 10 = 20 marks)

D 10278 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS–UG)

Zoology

ZOL 5B 08—CELL BIOLOGY AND GENETICS

Time : Three Hours Maximum : 80 Marks

## Part A

I. One word question. Answer *all* questions. Each question carries 1 mark :

1 Write an example for polygenic trait in human.

2 The instrument used in drawing of microscopic object is ————————.

3 Mercuric Bromophenol Blue technique is used for the demonstration of ————————.

4 Energy dependent transport of material across membrane is ————————.

5 The instrument used to slice the tissue for histological studies is ————————.

6 Polytene chromosomes formed from a cytological event are called ————————.

7 Write the names of two mutagens.

8 Write the example for polygenic inheritance.

9 Barr body is associated with ———————— chromosome.

10 Name of the scheme used in Human chromosome classification is ————————.

(10 × 1 = 10 marks)

## Part B

II. Short answer questions. Answer any *ten* questions. Each question carries 2 marks :

11 What are fixatives ? Give two examples.

12 Explain the role of stage micro meter in microscopic calibration.

13 Explain GERL concept.

14 Write on Atavism.

15 Explain briefly apoptosis.

16 Write short note on erythroblastosis foetalis.

17 Explain recombination.

18 Write note on Eugenics.

19 Write short note on the functions of centrioles.

20 Write note on biogenesis of ribosomes.

21 Comment on mounting medium.

22 What is diffusion ?

(10 × 2 = 20 marks)

## Part C

III. Paragraph questions. Answer any *five* questions. Each question carries 6 marks :

23 Write an account on autosomal chromosome abnormalities.

24 Explain the principle and uses of light microscopes. Add note on oil immersion objectives.

25 Give in detail the stages of mitosis. Add notes on its significance

26 Explain kinds of epistasis with examples.

27 Describe the structure and functions of Golgi complex.

28 What are linkage and linkage groups ? Write a note on chromosome theory of linkage.

29 Explain the inherent disorder associated with thalassemia.

30 Give an account on sex-linked characters.

(5 × 6 = 30 marks)

## Part D

IV. Essay questions. Answer any *two* questions. Each question carries 10 marks.

31 Write an account on sex determination mechanisms in animals.

32 Give an account on different kinds of chromosome mutations. Add notes on its significance.

33 Give a brief account on the nucleosome model of chromatin organisation. Add note on euchromatin and heterochromatin.

34 Describe the structure and functions of mitochondria with suitable illustrations.

(2 × 10 = 20 marks)

D 10277 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Zoology

## ZOL 5B 07—ETHOLOGY, EVOLUTION AND ZOOGEOGRAPHY

Time : Three Hours Maximum : 80 Marks

### Part A

I. One Word Questions. Answer *all* questions. Each question carries 1 mark :

1 Who put forward Mutation theory ?

2 Write down the scientific name of insect which exhibited industrial melanism.

3 The sum total of genes of a breeding population is called ————————.

4 Who introduced the concept of random genetic drift ?

5 Mention the mammals which are abundant in Australian region.

6 Name any *one* biodiversity hotspot located in India.

7 Mention the zoogeographic realm in which elephants are abundant.

8 Name an animal exhibiting positive geotaxis.

9 Mention the evolutionary theory proposed by August Weisman.

10 Name any *one* major technique used in fossil dating.

(10 × 1 = 10 marks)

### Part B

II. Short Answer Questions. Answer any ten questions. Each question carries 2 marks :

11 Write notes on homing instinct.

12 What is founder effect?

13 Explain Kinesis.

14 What are co-acervates ?

15 Write notes on biogenetic law.

16 Distinguish between continental islands and oceanic islands.

17 What is hybrid inviability ?

18 Mention the faunal peculiarities of Ethiopian Region.

19 What is convergent evolution ?

20 What is meant by phylogenetic tree ?

21 Comment on the significance of genetic drift in evolution.

22 Discuss the role of pheromones in social behavior.

(10 × 2 = 20 marks)

## Part C

III. Paragraph Questions. Answer any *five* questions. Each question carries 6 marks :

23 Explain Oparin-Haldane theory on the origin of life.

24 Explain the theory of punctuated equilibrium. Add a note on its evolutionary significance.

25 What are living fossils ? Explain their common features by citing suitable examples.

26 Describe the various morphological and anatomical evidences for evolution.

27 Explain the process of fossilization.

28 Describe the various pre-zygotic isolating mechanisms.

29 Explain different types of animal distributions.

30 Explain geological time scale.

(5 × 6 = 30 marks)

## Part D

IV. Essay Questions. Answer any *two* questions. Each question carries 10 marks :

31 Define Speciation. Write an essay on different types of speciation.

32 Discuss the contribution of Charles Darwin to the field of evolution.

33 Write an essay on fossil ancestors of man.

34 Explain different types of learning behaviour.

(2 × 10 = 20 marks)

D 10276 (Pages : 2) Name.....

Reg. No.....

# FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Zoology

## ZOL 5B 06—ENVIRONMENTAL BIOLOGY, WILDLIFE CONSERVATION AND TOXICOLOGY

Time : Three Hours Maximum : 80 Marks

A) Answer *all* questions. Each carries 1 mark :

1 Define Niche.

2 Write any two examples for sedimentary type of biogeochemical cycle.

3 What are xenobiotics ?

4 What is ecotone ?

5 Write the full form of CITES.

6 Name any two biodiversity hotspots in India.

7 What is GPP ?

8 Define *in situ* conservation.

9 Name any two National parks in Kerala.

10 Mention any two endangered animals in Western Ghats.

(10 × 1 = 10 marks)

B) Answer any *ten* questions in two *or* three sentences each. Each carries 2 marks :

11 What is Red Data Book ?

12 Write briefly on Kyoto Agreement.

13 Distinguish between acute and chronic toxicity.

14 Write notes on botulism.

15 Explain Seed Bill (2005).

16 What are ecological pyramids ?

17 What is remote sensing ? Mention its role in ecology.

18 Write a brief note on ecological impacts of sand mining.

19 Distinguish between autecology and synecology.

20 What are the common methods used for determining home range ?

21 Mention the major recommendations of Stockholm Conference.

22 Comment on the significance of conservation of natural resources.

(10 × 2 = 20 marks)

C) Answer any *five* questions in not more than *a paragraph* each. Each carries 6 marks :

23 Discuss the major threats to biodiversity in India.

24 Explain the Laws of limiting factors.

25 Comment on sustainable development and its ecological significance.

26 Explain energy flow through an ecosystem.

27 Write an account on positive population interactions.

28 What are biodiversity indices ? Explain the different types of biodiversity indices.

29 Comment on the destruction of mangroves and its consequences.

30 Explain the Laws of thermodynamics in ecological context.

(5 × 6 = 30 marks)

D) Write essays on any *two* of the following. Each carries 10 marks :

31 Write an account on the properties of population.

32 Describe the various wildlife conservation projects in India.

33 Explain the biogeochemical cycling of Nitrogen.

34 Write an essay on community succession.

(2 × 10 = 20 marks)