09CT21

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

College with Potential for Excellence

Residential & Autonomous – A Gurukula Institute of Life-Training
Re-accredited (3rd Cycle) with 'A' Grade (CGPA 3.59 out of 4.00) by NAAC
[Affiliated to Madurai Kamaraj University]

B.Sc. Zoology Degree (Semester) Examinations, April 2021
Part – III: Core Subject: Second Semester: Paper – I

CHORDATES - I

Under CBCS – Credit 4

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Retrograssive metamorphosis is found in

a) Balanoglossus b) Amphioxus
c) Herdmania d) Petromyzon

2. The anterior part of Amphioxus is

a) Rostrum b) Oral hood c) Mouth d) Cirri

3. Placoid scales are present in

a) Salmons b) Lamprey c) Sharks d) Hag fishes

4. Sound box or voice box in birds is known as

a) Larynx b) Syrinx c) Synsacrum d) Pygostyle

5. Integument refers to

a) Lungs b) Heart c) Skin d) Eye

6. J shaped stomach is present in

a) Elasmobranch b) Ruminants
c) Buffaloes d) All of these

7. How many spinal nerves are present in frog?

a) 8 pairs b) 10 pairs c) 12 pairs d) 15 pairs

8. Muscles are:

a) Thermoreceptor b) Mechanoreceptor

c) Chemoreceptor d) Photoreceptor

9. Bone of upper arm is called

a) Femur b) Tibia c) Humerus d) Ulna

10. The basic functional unit of kidney is

a) Neuron b) Nephron c) Henle's loop d) Nephridium

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Comment on Kolliker's pit.

12. What is nauptial pad?

13. Mention the types of feathers in pigeon.

14. List out the epidermal derivatives.

15. Write down the dental formula of rabbit.

16. Enlist the types of receptors found in mammals.

17. Comment on pelvic girdle.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Enumerate the general characteristic features of Balanoglossus.

[OR]

b) Give a brief note on retrogressive metamorphosis of ascidian larva.

19. a) Describe the morphology of shark with a labelled sketch.

[OR]

b) Explain the morphological features of pigeon with suitable diagram.

20. a) Discuss the various dermal derivatives found in animals.

[OR]

b) With a neat sketch, describe the respiratory system of bird.

21. a) Discuss the control nervous system of *Calotes* with a neat diagram.

[OR]

b) Draw the structure of photoreceptor in rabbit and comment on it.

22. a) Elucidate the structure of pituitary gland.

[OR]

b) Describe the excretory system of rabbit with a labelled sketch.

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. Write down the general characters and classification of protochordate with suitable examples.

24. Discuss the general characters and classification of sub phylum vertebrata up to class level.

25. Compare the digestive system of frog with that of rabbit.

26. With a neat sketch, describe and compare the various animals heart.

27. Describe the structure and organisation of skull of frog.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – III: Core Subject: Second Semester: Paper – II

CHORDATES-II

Under CBCS – Credit 4

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. The earliest known reptile was called_____

a) *Captorhinus* b) *Limnoscelis* c) *Seymouria* d) *Hylonomus*

2. _____ period is the age of amphibians

a) Devonian b) Cambrian c) Carboniferous d) Triassic

3. Parental care in fishes is a _____

a) Artificial behavior b) Instinctive behavior

c) Photophores d) Cold light

4. Which one is the highest degree of parental care in fishes?

a) Viviparous fishes b) Anguilla c) Loaches d) Anabas

5. Neoteny is normally seen in the _____.

a) Aves b) Pisces c) Amphibia d) Mammals

6. The most poisonous snake is

a) Krait b) Tree snake c) Python d) Rat snake

7. The wings of birds are modified into _____

a) Claws b) Remiges c) Fore limbs d) Hind limbs

8. Flapping is _____ mode of flight.

a) Up stroke b) Down stroke c) Recovery stroke d) Usual

9. _____ is egg laying mammals

a) Prototheria b) Metatheria c) Eutheria d) All the above

10. Which one of the following is eutheria?

a) Camel b) Monkey c) Man d) All the above

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Define fossils.
12. What is geological time scale?
13. Comment on territorialization.
14. What is Neoteny? Mention its types.
15. Comment on nocturnal migration.
16. What is synsacrum?
17. Indicate the specific features of aquatic mammals.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Specify the zoological importance of Archaeopteryx.

[OR]

b) Enumerate the salient features of class amphibia.

19. a) Write a brief account on migration of birds.

[OR]

b) With appropriate illustrations, describe the ancestors of amphibians.

20. a) Write down the characteristics of *Ichthyophis glutinosa*.

[OR]

b) Give a short note on poisonous snakes of South India.

21. a) Describe how the birds are adapted to aerial mode of life.

[OR]

b) Discuss about the flightless birds and give examples.

22. a) Mention the salient features of eutheria.

[OR]

b) Describe the reptilian characters of prototheria.

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. " Birds are glorified reptiles through the principles of Huxley"-

Substantiate

24. Write an essay on accessory respiratory organs in fishes.
25. Give a detailed account on parental care in amphibia.
26. Discuss elaborately the flight adaptations in birds.
27. Citing suitable examples, explain the adaptation of aquatic mammals.

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B.A. & B.Sc. Degree (Semester) Examinations, April 2021

Part – IV: Non-Major Elective Subject: Second Semester: Paper – I

FOOD AND NUTRITION

Under CBCS – Credit 2

Time: **2** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Which one is the building block of the body?

a) Carbohydrate b) Protein c) Fat d) Vitamins

2. Pick out the basic unit of carbohydrate.

a) Glucose b) Amino acid c) Fatty acid d) Enzyme

3. Which one is not a mineral?

a) Iodine b) calcium c) sodium d) Protein

4. Scurvy is caused by the deficiency of

a) Vitamin E b) Vitamin C c) Vitamin D d) Vitamin K

5. Deficiency of iodine leads to

a) Anaemia b) Tetany c) Goitre d) Fluorosis

6. Among the following which one is not a water soluble vitamin deficiency disorder.

a) Xerophthalmia b) Scurvy c) Beriberi d) Pellagra

7. Marasmus is the deficiency syndrome of

a) Proteins b) carbohydrates c) Minerals d) Vitamins

8. The technique is used to preserve milk is

a) Drying b) Salting c) Pasteurization d) Smoking

9. Which of the following is not a food born diseseaes?

a) Salmonellosis b) Botulism c) Malaria d) Marasmus

10. Identify the common insect contaminating the food.

a) House fly b) Honeybee c) Grasshopper d) Mosquito

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Expand FAO and RDI.

12. What is balanced diet?

13. What are nutrients?

14. Give a note on fat.

15. List out the biochemical name of fat soluble vitamins.

16. Comment on Anaemia.

17. What is food poisoning?

SECTION – C

Answer ALL Questions **(3 × 9 = 27)**

18. a) Expand and comment on RDA.

[OR]

b) Narrate the functions of food.

19. a) Describe the physiological role of carbohydrates and proteins.

[OR]

b) Comment on the physiological importance of minerals.

20. a) Comment on the disorders of malnutrition.

[OR]

b) Explain the controlling measures for insects and rodents.

SECTION – D

Answer any TWO Questions **(2 × 14 = 28)**

21. Describe the sources and functions of fat soluble vitamins.

22. Write an essay on sources, functions and deficiency disorders of water soluble Vitamins.

23. Describe the various food preservation techniques.

24. Explain the causes and prevention of food poisoning.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – III: Core Subject: Fourth Semester: Paper – I

DEVELOPMENTAL BIOLOGY

Under CBCS – Credit 4

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Theory of preformation was proposed by

a) Leeuvenhock b) H.C.Pander c) Von Baer d) Malpighi

2. The cell which is destined to develop into gametes is called?

a) Primordial germ cells b) Spermatozoa

c) Germplasm d) Mesoderm

3. The male hormone is produced in the testis by the cells of _____.

a) Sertoli cells b) Epithelial cells

c) Spermatocytes d) Leydig cells

4. Cleavage is initiated by

a) Blastocyst b) Polar axis c) Cleavage furrow d) Meridional plane

5. Gastrulation in Amphioxus occurs by a process of

a) Hyperboly b) Hypoboly c) Delamination d) Invagination

6. The lens of eye is originated from

a) Epidermis b) Endodermis c) Optic cup d) Optic chiasma

7. The hormone is responsible for pregnancy is

a) Estrogen b) Androgen c) Progesterone d) Pro estrogen

8. The fluid secreted during first three days after parturition is

a) Transitional milk b) Colostrum

c) Skim milk d) Breast milk

9. The male infertility is mainly due to

a) Ejection b) Sperm quality c) Female partner d) Fear

10. The common intrauterine device used in India is

a) Condom b) Loops c) Copper T d) Niroth

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. What are primordial germ cells?

12. State the functions of sertoli cells.

13. Bringout the functions of fertilizin?

14. Give a short note on cortical reaction.

15. List out the various cavities of brain.

16. Comment on the role of progesterone.

17. Write a short note on differentiation.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Through suitable diagram, elucidate the process of spermiogenesis

[OR]

b) Classify eggs with suitable examples.

19. a) What is acrosomal reactions? Mention its role during fertilization.

[OR]

b) Distinguish between fertilizin and antifertilizin.

20. a) Discuss the fate of mesoderm formation in chick.

[OR]

b) Describe the mechanism of gastrulation in frog.

21. a) Explain the development of kidney from nephrostome.

[OR]

b) Enumerate the role of hormonal control in human reproduction.

22. a) What is placenta? Describe its types.

[OR]

b) Define teratogenesis. What are the various factors involved in it?

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. With suitable sketch, expound the process of oogenesis.

24. Write an essay on parthenogenesis.

25. Highlight the functions of foetal membranes.

26. What is Metamorphosis? Explain the various types and hormonal control of metamorphosis.

27. Discuss the aim, methods, advantages and disadvantages of Birth control in Human.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – III: Core Subject: Fourth Semester: Paper – II

PHYSIOLOGY

Under CBCS – Credit 4

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. The study of the functional aspect of cell is

a) General physiology b) Cellular physiology

c) Special physiology d) Pathological physiology

2. Which of the following is associated with absorption?

a) Pancreas b) Small intestine c) Gall bladder d) Liver

3. The anticoagulant secreted by leech is

a) Hirudin b) Cephalin c) Fibrin d) Heparin

4. Which is denoted as pace maker in the hearts of higher vertebrates?

a) Auriculo – ventricular node b) Sinu - auricular node

c) Purkinje fibre d) Bundle of His

5. Excretory product of spider is

a) Guanine b) Uric acid c) Urea d) Hippuric acid

6. Human kidney is categorized as

a) Metanephric kidney b) Metanephridium

c) Pronephric kidney d) Mesonephric kidney

7. Alzhemer's disease in human is associated with the deficiency of

a) Dopomine b) Glutamic acid

c) Acetylcholine d) Gamana aminobutyric acid

8. Muscle get fatigue is due to accumulation of

a) Lactic acid b) ATP

c) Phosphate molecules d) Carbon dioxide

9. In human eye, image is formed

a) Behind retina b) in front of retina

c) on retina d) in between lens and retina

10. Which gland control the basal metabolic rate?

a) Thyroid b) Parathyroid c) Testes d) Pancreas

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Define: water soluble vitamins.
12. Define the term respiratory quotient.
13. Differentiate between hibernation and aestivation.
14. Define: reflex action and reflex arc.
15. What are the types of sensory receptors?
16. Distinguish between myogenic heart and neurogenic heart.
17. What is biological clock? Add a note on its significance.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Enumerate the fields and branches of physiology.

[OR]

b) Narrate the physiological role of major nutrients.

19. a) Trace the origin and conduction of heart beat with suitable diagram.

[OR]

b) Describe the composition of blood.

20. a) Classify the animals based on their excretory products with illustrations.

[OR]

b) Give a brief account on ultra structure of nephron with a labelled sketch.

21. a) Expound the ultra structure of a typical neuron with a neat diagram.

[OR]

b) Write a short note on ultrastructure of skeletal muscle through figures.

22. a) Describe the structure of human photoreceptor with a neat diagram.

[OR]

b) Enumerate the physiological roles of pituitary hormones.

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. Discuss the enzymology in the digestion of carbohydrates and proteins.
24. Elaborate the transport of respiratory gases and oxygen dissociation curve.
25. Describe the mechanism of urine formation and excretion.
26. Explain the mechanism of muscle contraction through sliding filament theory.
27. Write a detailed account on the structure of phonoreceptor and hearing mechanism in human.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – IV: Skill Based Subject: Fourth Semester: Paper – I

CLINICAL LAB TECHNOLOGY

Under CBCS – Credit 2

Time: **2** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. The vitamin essential for blood clotting is

a) Vitamin A b) Vitamin B c) Vitamin C d) Vitamin K

2. Autoclave are used in the medical applications to perform _____

a) Vulcanization b) Sterilization c) Heating d) Cleaning

3. Who is invented the analytical ultracentrifuge?

a) Svedberg b) Beams c) J.J. Thomson d) Richard

4. Ion exchange chromatography is based on?

a) Electrostatic attraction b) Electrical mobility of ionic species

c) Partition chromatography d) Adsorption chromatography

5. HPLC is an abbreviation for?

a) High Profit Liquid Chromatography

b) High Pressure Liquid Chromatography

c) High Performance Liquid Chromatography

d) Higher Profit Low Chromatography

6. The cooling agent for the MRI magnet is

a) Helium b) Neon c) Argon d) Xenon

7. What property of sound waves acts like the principle of ultrasound?

a) Reflection and Refraction b) Reflection only

c) Refraction only d) Propagation

8. Electrocardiogram was developed by

a) Wilhelm His b) Steward

c) Hubert Mann d) Willem Einthoven

9. Which of these is not a lipid?

a) Fats b) Oils c) Proteins d) Waxes

10. The normal composition of faces includes all of the following except:

a) Bacteria b) Blood c) Electrolytes d) Water

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Mention the role of Centrifuge.

12. Write any two uses of CT scan.

13. Expand: MRI

14. What is anaemia?

15. State any four biosafety equipment.

16. Differentiate between Risk Group-2 and Risk Group-3

17. What is ESR?

SECTION – C

Answer ALL Questions **(3 × 9 = 27)**

18. a) How will you manage the biomedical waste in your clinical laboratories?

[OR]

b) Discuss the principle and applications of autoclave.

19. a) Comment on Haemocytometer.

[OR]

b) Describe the principle and applications of colorimeter.

20. a) Explain the causative organism, symptoms and control measures of jaundice.

[OR]

b) Write a short note on CHD.

SECTION – D

Answer any TWO Questions **(2 × 14 = 28)**

21. What is ECG? Give its medical importance.

22. Explain the principle, working mechanism and applications of electron microscope.

23. Give a detailed account on Urine profile.

24. What is chromatography? Explain its principle and applications of paper chromatography.

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B.Sc. Chem. & Botany Degree (Semester) Examinations, April 2021

Part – III: Allied Subject: Fourth Semester: Paper – I

BIOLOGY AND HUMAN WELFARE

Under CBCS – Credit 4

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. The viruses that infect bacterial cells are called

a) Virions b) Viroids c) Prions d) Bacteriophage

2. AIDS is diagnosed by

a) Northern blotting b) Southern blotting

c) ELISA d) Eastern blotting

3. Bacteria which obtain their food from dead organic matter called as

a) Heterotrophs b) Autotrophs c) Saprophytic d) Symbiotic

4. What is the normal incubation period for tetanus?

a) 1 to 7 weeks b)12 to 31 days c) 3 to 21 days d) 2 to 3 weeks20

5. Disease amoebiasis is caused by

a) *Entamoeba* b) *Plasmodium* c) Hookworm d) Tapeworm

6. Which one is the vector of Wucheraria?

a) Man b) *Culex* c) Pig d) *Anopheles*

7. The Powdery mildew diseases caused by

a) Bacteria b) Fungus c) Virus d) Nematodes

8. The important food fish is

a) Rohu b) *Catla catla* c) Wallago attu d) *Clarius*

9. The predominant gas in biogas is

a) Methane b) Oxygen c) Nitrogen d) Hydrogen

10. Which is the unfertile female of the honey comb?

a) Queen b) Worker c) Drone d) Wax moth

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Define pathogenicity.

12. Expand the: DPT and BCG.

13. Give a note on thrombocytopenia and leukopenia.

14. What is endoparasite?

15. Comment on stifling.

16. What is vermiwash?

17. Enlist the medicinal values of mushroom.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Describe the structure of a typical virus with neat diagram.

[OR]

b) Explain the symptoms and control methods of rabies.

19. a) Enumerate the characteristics of bacteria.

[OR]

b) Write about the symptoms and preventive measures of cholera.

20. a) Discuss the symptoms, causes and control methods of elephantiasis.

[OR]

b) Describe the life cycle of *Ancylostoma duodenale.*

21. a) Enumerate the ideal features for the maintenance of fish pond.

[OR]

b) Indicate the scope of Vermitechnology.

22. a) Describe the methods of cultivation of paddy straw mushroom.

[OR]

b) Enlist the characteristic features of biogas.

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. Explain in detail the symptoms, diagnosis and treatment of HIV-AIDS.

24. Discuss elaborately the causative organism, symptoms, mode of transmission and control measures of tuberculosis.

25. Describe the life cycle of *Plasmodium* in man.

26. Give an elaborate account on rearing appliances in sericulture.

27. Write an essay on biology of honey bee.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – III: Core Subject: Sixth Semester: Paper – I

EVOLUTION

Under CBCS – Credit 4

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. The primitive composition of the atmosphere on the earth was chiefly composed of

   a) Water vapour b) Argon c) Nitrogen d) Hydrogen

2. Gemplasm theory was proposed by

   a) Weismann b) Darwin c) Lamarck d) Hugo de Vries

3. Darwin theory of evolution emphasis on

   a) Characters are acquired through inheritance
   b) Species change morphology with time
   c) Nature selects organisms which can adapt
   d) Evolution is due to effect of environment

4. Genetic drift is also known as

   a) Founder's effect b) Sewall Wright's effect
   c) Bottleneck effect d) Gene migration

5. Biological factor that prevent gene flow are called_____

   a) Isolating mechanisms b) Mutation
   c) Hybridization d) Genetic difference

6. "An edible or harmless species resembles an inedible or harmful species" is example for

   a) Batesian mimicry b) Mullerian mimicry
   c) Protective mimicry d) Aggressive mimicry

7. _____ era was the 'golden age of reptiles'.
a) Mesozoic b) Cenozoic c) Palaeozoic d) Archaeozoic

8. The organic matter of the dead body is replaced by minerals is called
a) Actual fossils b) Petrified fossils
c) Mould fossils d) None of these

9. Bipedal locomotion was first exhibited by
a) Australopithecus b) Dryopithecus
c) Ramapithicus d) Pitecanthropus

10. The correct sequence of evolution of horse is
a) Eohippus >Mesohippus>Pliohippus>Equus>Merychippus
b) Eohippus>Merychippus >Mesohippus>Pliohippus>Equus
c) Eohippus >Mesohippus>Merychippus>Pliohippus>Equus
d) Eohippus >Pliohippus >Mesohippus>Merychippus>Equus

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. What is atavism?

12. Define: vestigial organs.

13. Define: the term Neodarwinism.

14. What do you mean by biological wastage?

15. Define: Gause's law

16. What is extinction?

17. Define the term Orthogenesis.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Bring out the embryological evidences in support of common ancestry in the course of evolution

[OR]

b) Describe the origin of life with reference to Oparin – Haldane theory.

19. a) Write a short note on the following:
i) Stabilizing Selection ii) Directional Selection

[OR]

b) Discuss the major role of genetic drift. Illustrate your answer with suitable examples.

20. a) Discuss the following:
i) Allopartic speciation ii) Sympatric speciation

[OR]

b) Summarise the various factors involed in speciation.

21. a) How the fossils are formed? Describe the various types of fossils and discuss their significance in biological studies.

[OR]

b) Give a short account on dating of fossils.

22. a) Write a brief on adaptive radiation in mammals.

[OR]

b) Summarise the evolutionary trends exhibited in the evolution of horse.

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. Discuss Lamarckism and Neo - Lamarckism with appropriate illustrations.

24. Write on essay on Darwin's theory of natural selection.

25. What is isolation? Describe the various isolating agents and the importance of isolation.

26. Describe in a tabular form the geological divisions of the earth crust along their salient features and fauna.

27. Write an essay on the biological evolution of human.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021
Part – III: Elective Subject: Sixth Semester: Paper – I

DAIRY FARMING

Under CBCS – Credit 5

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Which breed is originated in Scotland?
   a) Gurunsey b) Holstein-Friesian c) Brown Swiss d) Ayrshire
2. Fat content in the milk of Murrah is
   a) 7.82% b) 6.2% c) 7.5% d) 8%
3. To facilitate the absorption, the food is
   a) Burnt b) Digested c) Ingested d) Absorbed
4. A typical rumen contains volatile fatty acids normally in the greatest quantity is
   a) Acetic b) Propionic c) Butyric d) Lactic
5. The disease anthrax is spread mainly through
   a) Feeding b) Inhalation c) Breeding d) Copulation
6. The bloat disease in the animals grazing in _____ pastures.
   a) Rice b) Paddy c) Wheat d) Legume dominant
7. Each alveolus of udder is drained by a small duct called
   a) Interlobular b) Lobular c) Teat cistern d) Terminal duct
8. The desiccated milk product prepared by rapid evaporation of moisture until the total solid content of the product is 70 to 75 % is
   a) Ice cream b) Soft ice cream c) Khoa d) Baby ice cream

9. Semen collection from bull should be made during _____ hours before feeding

a) Late Night b) Late Morning c) Early morning d) Early evening

10. In electro ejection method the amount of electric current applied in the rectal floor is

a) 50 Volts b) 30 Volts c) 40 Volts d) 20 Volts

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Define: Heterosis

12. What is bloat?

13. Write a short note on suspensory structure of udder.

14. List down the characters of Murrah.

15. What is silage?

16. Define: Pasteurization

17. Specify any four protein supplementary food for cow.

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Bring out the scope of dairy farming.

[OR]

b) Distinguish between Jersey and Holstein fresian.

19. a) With the help of neat a labelled diagram, elucidate the digestive system of cow.

[OR]

b) Assess the nutritive value of cattle feed.

20. a) Comment on Milk fever disease.

[OR]

b) What is Mastitis? Explain.

21. a) Discuss the adultration of milk and its detecting methods.

[OR]

b) Explain the various by-products of milk and their nutritive values.

22. a) Discuss the Role of cooperative society on Milk production and Marketing.

[OR]

b) Discuss briefly the equipment involved for dairy cow.

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. Describe any five Milch breeds of India.

24. Discuss the feeding and management of pregnant cow and calf.

25. Explain the causative organism, symptoms and control measures of bacterial diseases of cow.

26. Describe the composition of milk and colostrum and add a note on the importance of colostrum.

27. Give a detailed account on the process, advantage, disadvantage and limitations of Artificial insemination.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – III: Elective Subject: Sixth Semester: Paper – II

ENVIRONMENTAL BIOLOGY

Under CBCS – Credit 5

Time: **3** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Which one of the following is called as environmental trigger?

a) Soil b) Light c) Water d) Temperature

2. The formation of soil from rock is

a) Pedology b) Pedogenesis c) Hydrologic cycle d) Phototropism

3. Commensalism literally means

a) Messmates b) Living together c) Watchman d) Guest

4. The amount of energy that is passed from one organism to the next in a food chain is

a) 5% b) 10% c) 15% d) 20%

5. When in a population, the birth and death rates exactly balance each other, it is called

a) Plateau Phase b) Exponential growth phase

c) Initial growth phase d) Acceleration phase

6. Ecotone is

a) Functional status of an organism in its community

b) Intermediate zone lying between two adjacent communities

c) Intermediate zone between two ecosystems

d) Intermediate zone between sea and river

7. The meeting place of the river and sea is called

a) Estuary b) Lake c) Pond d) Sea shore

8. Temperate evergreen forests are found in

a) Western Ghats b) Himalayan Range

c) Aravalli Range d) Assam

9. Minamata disease is caused by

a) Mercury b) Carbon dioxide c) DDT d) Methylisocyanate

10. Wild life week is celebrates during the month of

a) October b) November c) December d) August

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Mention the scope of environmental biology

12. Comment on eurythermal

13. What is energy flow?

14. Define edge effect

15. Comment on Biotic potential

16. Give any two adaptations of cave animals

17. What is biomagnification?

SECTION – C

Answer ALL Questions **(5 × 5 = 25)**

18. a) Explain the soil profile with suitable diagram.

[OR]

b) Define and explain thermal stratification with sketch

19. a) Describe mutalism with suitable examples

[OR]

b) Discuss ecological pyramid with examples

20. a) Write an account on population growth curves

[OR]

b) Define age pyramids. Mention its salient features.

21. a) Explain the arboreal adaptations of the forest fauna

[OR]

b) Give a brief account on adaptations of estuarine fauna

22. a) Assess the ecological effects of water pollution

[OR]

b) What are the precautions to control air pollution?

SECTION – D

Answer any THREE Questions **(3 × 10 = 30)**

23. Describe the biological effects of light with examples

24. Explain nitrogen cycle in detail.

25. Discuss the various stages in ecological succession

26. Give an account on the desert adaptation of animals

27. Write an essay on wild life conservation and management

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – IV: Skill Based Subject: Sixth Semester: Paper – I

FISH CULTURE

Under CBCS – Credit 2

Time: **2** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Pisciculture is a culture of

a) Earth worm b) Prawns c) Fishes d) Silkworm

2. The important food fish is

a) *Rohu* b) *Catla* c) *Wallago* d) *Clarius*

3. The rearing of a single species in a pond is

a) Paddy cum fish culture b) Monoculture

c) Monosex culture d) Polyculture

4. The optimum temperature for fish is _____

a) 20 – 25^0C b) 30 – 35^0C c) 35 - 40^0C d) 15 - 20^0C

5. Induced breeding is effective in_____

a) Pisciculture b) Sericulture

c) Apiculture d) Lac culture

6. Indian Major Carps are cultured in

a) Pond b) River c) Dam d) All

7. The optimum pH for Indian Major Carps are

a) 6 to 7 b) 7 to 8 c) 8 to 9 d) 9 to 10

8. The common name of *Poecilia*

a) Angel fish b) Fighter c) Gourami d) Molly

9. Simplest method of curing fish is

a) Drying b) Salting c) Freezing d) Smoking

10. Gill rot disease in fishes is caused by

a) *Branchiomyces* b) *Bacillus*

c) *Vibrio* d) *Aeromonas*

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. Write down the scope of fish culture

12. Comment on extensive culture

13. What is Bern?

14. Define polyculture

15. What is heteroplastic?

16. List out the symptoms of Dactylogyrosis

17. Write the characteristics of artificial feed.

SECTION – C

Answer ALL Questions **(3 × 9 = 27)**

18. a) Describe the types of fish pond

[OR]

b) Explain the integrated fish farming with suitable example

19. a) Write an account on monosex culture with examples

[OR]

b) Explain the desirable characters of cultural organisms

20. a) Specify the salient features of gold fish

[OR]

b) Describe the symptoms and treatments of bacterial diseases of fish

SECTION – D

Answer any TWO Questions **(2 × 14 = 28)**

21. Explain the properties of water in fish culture.

22. Describe the maintenance of fish pond

23. Write detailed account on induced breeding technique in fish

24. Discuss the biology of Indian Major Carps

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Part – IV: Skill Based Subject: Sixth Semester: Paper – II

VERMITECHNOLOGY

Under CBCS – Credit 2

Time: **2** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(10 × 1 = 10)**

1. Earthworm belongs to the Phylum

a) Annelida b) Neooligochaeta

c) Acanthobdellida d) Rhyncobdellida

2. Earthworm belongs to the order

a) Archioligochaeta b) Neooligochaeta

c) Acanthobdellida d) Rhyncobdellida

3. Which one of the following is the exotic species?

a) *Eisenia foelidal* b) *Perionyx excavatus*

c) *Lambido maritii* d) *Pheretima elongata*

4. The number of earthworm species in India is

a) 409 b) 590 c) 609 d) 709

5. The food of earthworm is

a) Detritus b) Grazious c) Parasitic d) Saprophyte

6. Which is the secretion of earthworm?

a) Slime b) Silk c) Wax d) Poison

7. Which organism is called a farmers friend?

a) Earthworm b) Hookworm c) Pinworm d) Tapeworm

8. Which one is used as bait for fishing?

a) Earthworm b) Cockroach c) Grasshopper d) Roundworm

9. What is the locomotory organ of earthworm?

a) Setae b) Cilia c) Legs d) Fins

10. The percentage of nitrogen in earthworm casting is

a) 3% b) 2% c) 1% d) 4%

SECTION – B

Answer any FIVE Questions **(5 × 2 = 10)**

11. List out the exotic and indigenous species of earthworms.

12. Give the systematic position of earthworm.

13. What is epigenic?

14. Comment on hermaphrodite.

15. What is vermibed?

16. Give a short note on worm casts.

17. Expand NGO and KVIC.

SECTION – C

Answer ALL Questions **(3 × 9 = 27)**

18. a) Write an account on the scope of Vermitechnology

[OR]

b) Describe the habit and habitat of earthworm.

19. a) Give an account on digestive system of earthworm with neat sketch.

[OR]

b) Explain the methods for preservation of earthworms

20. a) Enlist the external features of earthworm with a neat diagram.

[OR]

b) Describe the method for preparation of vermiwash.

SECTION – D

Answer any TWO Questions **(2 × 14 = 28)**

21. Write an essay on life cycle of earthworm.

22. Give a detailed account on methods for collection of earthworms.

23. Discuss elaborately the methods of vermicomposting.

24. Explain the role of government for financial assistance in Vermitechnology.

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B.Sc. Zoology Degree (Semester) Examinations, April 2021

Part – IV: Skill Based Subject: Sixth Semester: Paper – III

ZOOLOGY FOR COMPETITIVE EXAMINATIONS

Under CBCS – Credit 2

Time: **2** Hours Max. Marks: **75**

SECTION – A

Answer ALL Questions **(75 × 1 = 75)**

1. Pharyngeal gill slits are found in

a) Flying fish b) Silver fish c) Cray fish d) Cuttle fish

2. The disease caused by Trypanosoma

a) Sleeping sickness b) Chaga's disease

c) Kala-azar d) Oriental sore

3. Which one is the digenic protozoan parasite?

a) Monocystis b) Amoeba c) Plasmodium d) Opalina

4. Larva of sponge is known as

a) Planula larva b) Amphiblastula larva

c) Trochophore larva d) Glochidium larva

5. Ostia are meant to

a) Admit water current b) Pass out water current

c) Ingest food d) Excrete waste products

6. The gametes in sponges develop from

a) Amoebocytes b) Archeocytes c) Choanocytes d) Myocytes

7. Canal system in Lellcosolenie is

a) Asconoid b) Syconoid c) Leuconoid d) Rhagon

8. Gemmules are helpful in

a) Digestion b) Sexual reproduction

c) Asexual reproduction d) Current circulation

9. Tentacles of Hydra help in

a) Locomotion b) Food capturing

c) Locomotion and food capturing d) Respiration

10. The first invertebrates to develop a true nervous system are

a) Sponges b) Coelenterates c) Annelids d) Arthropods

11. Which of these is not a lipid?

a) Fats b) Oils c) Proteins d) Waxes

12. Scolex is a characteristic of

a) Flatworms b) Tapeworms c) Roundworms d) Earthworms

13. Flame cells are the excretory organs of animals belonging to the phylum

a) Protozoa b) Porifera c) Coelentrata d) Platyhelminthes

14. Which one is hermaphrodite?

a) *Ascaris* b) *Trichuris* c) *Megascolex* d) *Enterobius*

15. Roundworms differ from flatworms in having a

a) Bilateral symmetry b) Cuticle

c) Longitudinal nerve cord d) Pseudocoel

16. The female *Ascaris* can be distinguished from the male by

a) Curved posterior part b) Straight posterior part

c) Pineal setae d) Shorter in size

17. The life span of *Ascaris* is

a) More than 30 days b) Six months

c) Nine months d) About an year

18. The development of *Ascaris* eggs require

a) Oxygen b) Moisture

c) A temperature lower than that of human body

d) A temperature higher than that of human body

19. Role of typhlosole in the intestine of earthworm is

a) To kill bacteria b) To increase absorptive surface

c) To produce digestive enzymes d) To control blood flow

20. Nereis is commonly called

a) Earthworm b) Ringworm c) Roundworm d) Clamworm

21. Anticoagulant secreted by leech is

a) Hirudin b) Heparin c) Haematin d) Haemozoin

22. *Pheretina* is

a) Sterile b) Unisexual c) Hermaphrodite d) Radial symmetrical

23. The vector for the viral dengue fever is

a) Sandfly b) Housefly c) Head louse d) Mosquito

24. Lac is a product of

a) Faecal matter of lac insect b) Excess of oozing out of body

c) Secretion from the body d) Excretion from the body

25. The male and female mosquito can be distinguished by them

a) Size b) Wings c) Colour d) Anal styles

26. Green glands are

a) Organs of excretion in crustaceans b) Organs of excretion in insects

c) Endocrine glands of insects

d) Part of reproductive organs of insects

27. Internal shell is present in

a) Sepia b) Lamellidens c) Chiton d) Pila

28. The generic name of apple snail is

a) Pila b) Aplysia c) Helix d) Aphrodite

29. The blood pigment of mollusca is

a) Myoglobin b) Anthocyanin c) Haemocyanin d) Haemoglobin

30. The locomotor organs of echinoderms are called

a) Parapoda b) Pseudopodia c) Setae d) Tube feet

31. Study of sharks and rays is known as

a) Saurology b) Traumatology c) Torpedology d) Ichthyology

32. The flying fish Exocoetus belongs to the class

a) Dipnoi b) Osteichthyes c) Cyclostomata d) Chondrichthyes

33. Salmon is an example of

a) Anandromous migration b) Catadromous migration

c) Cartilaginous fish d) None of these

34. Cod liver oil is a rich source of

a) Vitamin A b) Iron

c) Calcium d) Vitamin B complex

35. Living fossil is

a) Dog fish b) Flying fish c) Dodo d) Coelacanth

36. Tooth shaped scales are

a) Cycloid b) Ctenoid c) Ganoid d) Placoid

37. Which is a true fish

a) Jelly fish b) Cuttle fish c) Star fish d) Dog fish

38. Lung fish is

a) *Protopterus* b) *Coelacanth* c) *Scoliodon* d) *Labeo*

39. Smooth, non-scaly, moist skin rich in glands is characteristic of

a) Fishes b) Whales c) Amphibians d) Crocodiles

40. Copulatory organs are absent in

a) Lizards b) Sphenodon c) Snakes d) Crabs

41. Which one of the reptiles has the shortest tail?

a) Garden lizard b) Cobra c) Chameleon d) Python

42. Which bird can fly backwards?

a) Albatros b) Humming bird c) Elephant bird d) Penguin

43. The most intelligent ape is

a) Man b) Gorilla c) Gibbon d) Chimpanzee

44. Whale fish is a member of

a) Reptilia b) Arthropoda c) Coelenterata d) Mammalia

45. Very large animal with single nostril is

a) Shark b) Whale c) Python d) Tortoise

46. The wisdom teeth in man is

a) 1^{st} molar b) Last molar c) 1^{st} premolar d) Last incisor

47. Oil in the skin is secreted by

a) Mucous glands b) Sebaceous glands c) Hair follicles d) Sweat glands

48. Red bone marrow is found in

a) Man b) Fish c) Lizard d) Frog

49. Cartilage is modified

a) Epithelial tissue b) Muscular tissue

c) Connective tissue d) Nerve tissue

50. Blood corpuscles in adults are formed in

a) Lymphnodes b) Bone marrow c) Liver d) Spleen

51. Tracheal and bronchial walls consist of

a) Hyaline cartilage b) Calcified cartilage

c) Fibrous cartilage d) Elastic cartilage

52. Human body can tolerate a loss of

a) One litre of blood b) Half a litre of blood

c) 1.5 litres of blood d) 2 litres of blood

53. Specific function of liver is

a) Excretion b) Histolysis c) Digestion d) Glycogenolysis

54. Trypsin is secreted by

a) Stomach b) Pancreas c) Liver d) Duodenum

55. Wound healing is enhanced by

a) Vitamin A b) Vitamin C c) Vitamin D d) Vitamin E

56. The enzymes are chemically speaking

a) Proteins b) Lipids c) Vitamins d) None of these

57. Basic unit of protein is

a) Helical strand b) Peptones c) Amino acids d) Glucose

58. The end product of fat digestion is

a) Amino acids b) Starch c) Fatty acids d) Glucose

59. The number of salivary glands in man is

a) Two pairs b) Three pairs c) Four pairs d) Five pairs

60. The optimum temperature for digestive enzymes in mammals is

a) 40 - 45°C b) 37 - 39°C c) 28 - 33°C d) 25 - 30°C

61. Meeting point of all metabolic pathways is

a) Lactic acid b) Citric acid c) Arginase d) Acetyl CoA

62. The breaking down of organic compounds and liberation of energy is

a) Metabolism b) Anabolism c) Catabolism d) Cannibalism

63. Insulin molecule is composed of

a) 15 Amino acids b) 51 Amino acids

c) 18 Amino acids d) 26 Amino acids

64. The major site of gluconeogenesis is

a) Muscles b) Kidney c) Liver d) Brain

65. Islets of langerhans secretes

a) Glucogon b) Insulin c) Enzymes d) None of these

66. The B.M.R of a normal adult man in K cal/m2/hr is

a) 40.1 b) 41.2 c) 39.8 d) 42.6

67. Maximum energy is produced by

a) Minerals b) Proteins c) Fats d) vitamins

68. Energy in hydrolysis is liberated as

a) Heat energy b) Light energy

c) Potential energy d) Kinetic energy

69. In all vertebrates, the oxygen transport is through

a) Haemocyanin b) Haemoglobin c) Myoglobin d) Haemoerythrin

70. The regulatory centre for respiration is situated in

a) The cerebral cortex b) Hypothalamus

c) Medulla oblongata d) Procephalon

71. Colour of oxyhaemoglobin is

a) Dull red b) Bluish red c) Bright red d) Dull brown

72. Electrocardiogram was developed first by

a) Wilhelm His b) Steward

c) Hubert Mann d) Willem Einthoven

73. Universal donor is the person with the blood group

a) A b) AB c) B d) O

74. The sympathetic nerve causes the heart rate to

a) Increase b) Decrease

c) Show no change d) Stroke volume increases

75. Excretory system is concerned with

a) Loop of Henle b) Humus c) Fibrous cartilage d) Actin