

**CHORDATES – I**

Under CBCS – Credit 4

Time: **3** HoursMax. Marks: **75****SECTION – A****Answer ALL Questions :****(10 × 1 = 10)**

1. Branchiostoma belongs to
 - a) Hemichordata
 - b) Cephalochordata
 - c) Urochordata
 - d) Pisces
2. The anterior part of Amphioxus is
 - a) Rostrum
 - b) Oral hood
 - c) Mouth
 - d) Cirri
3. Sucking mouth and rasping tongue is present in
 - a) Ostracoderms
 - b) hag fishes
 - c) Lampreys
 - d) Sharks
4. Reptiles are
 - a) Warm blooded
 - b) Cold blooded
 - c) Hot blooded
 - d) All of these
5. Cutaneous glands and chromatophores are present in
 - a) Stratum spongiosum
 - b) Stratum germinativum
 - c) Stratum corneum
 - d) Stratum Malphghii
6. Name of the vertebrate that stores food in the crop without digesting
 - a) Amphibians
 - b) Reptiles
 - c) Crocodiles
 - d) Birds
7. In which of the following do four pulmonary veins open by a common aperture in the left auricles?
 - a) Frogs
 - b) Reptiles
 - c) Lizards
 - d) Pigeon

8. Hippocampus, a part of the brain, is found only in
 a) Monotremes b) Snakes and Lizards
 c) Mammals d) All of these
9. Bone of upper arm is called
 a) Femur b) Tibia c) Humerus d) Ulna
10. Mesonephros may persist after birth in
 a) Reptiles b) Prototherians c) Metatheria d) All of these

SECTION – B

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

11. Define Urochordata.
 12. Comment on Tunic.
 13. What is Protheria?
 14. Write short notes on Crinata.
 15. Explain the functions of Integument.
 16. List out the types of WBCs.
 17. State the components of Axial skeleton.

SECTION – C

Answer ALL Questions : **(5 × 5 = 25)**

18. a) Explain the general characters of Protochordata.

(OR)

- b) Illustrate the Retrogressive metamorphosis in Ascidian.

19. a) Write an account on Petromyzon.

(OR)

- b) Classify the Phylum vertebrata upto class level.

20. a) Discuss the comparative similarities of digestive system between Fishes and Amphibian.

(OR)

- b) Explain the structure of skin in mammals.

21. a) Compare the nervous system of birds with reptiles.

(OR)

- b) Briefly explain Structural similarities of Heart among vertebrates.

22. a) Explain the groups of endoskeleton in frog.

(OR)

- b) Discuss the comparative anatomy of urinogenital system of amphibian with reptiles.

SECTION – D

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

23. Describe the Affinities of Balnoglossus.
 24. With suitable sketches explain the morphology of Scoliodon.
 25. Write an essay about comparative Respiratory system in vertebrates.
 26. Elucidate the general morphology receptor organs.
 27. List out the endocrine glands in vertebrates system and their functions.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

B.Sc. Zoology Degree (Semester) Examinations, April 2019

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)

- _____ is a transitional group of animals.
a) Aves b) Mammals c) Pisces d) Amphibian
- _____ is considered as the “Artificial swimming pool” of the embryo
a) Ovary b) Amniotic fluid c) Egg d) Sperm
- Pholis fish is also known as _____
a) butter fish b) mystus aor c) pipe fishes d) kurtus
- The larval stage of Eel is called _____
a) leptocephalus b) gambusia c) sword tail d) All the above
- Neoteny is normally seen in the _____.
a) aves b) pisces c) amphibia d) mammals
- Which snake of the following is non poisonous
a) Cobra b) Viper c) Python d) Coral-snake
- A typical feather has a central axis and an expanded portion called _____.
a) quill b) rachis c) vexillum d) barbs
- The periodical travelling of birds from one place to another and back, for breeding is called
a) roosting b) migration c) imigration d) emigration
- _____ is true placental mammals
a) Eutheria b) Echidna c) Prototheria d) Metatheria
- The ancestor of mammals possessed both mammalian and _____ characters
a) reptilian b) avian c) amphibians d) agnatha

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SECTION – B

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

- Define terrestrialization.
- What are the causes for fish migration?
- What do you mean by viviparity?
- Define artificial neotany.
- Comment on hydrophis.
- What is seasonal migration?
- Define acrodont dentition.

SECTION – C

Answer ALL Questions : (5 × 5 = 25)

- a) Briefly explain the theories of origin of vertebrates. (OR)
b) Enlist the trends in the origin of reptiles.
- a) Comment on parental care in fishes. (OR)
b) Write short notes on migration in fishes.
- a) Elucidate any two poisonous snakes of south India. (OR)
b) What are the salient features of proteus?
- a) List out the types of migration in birds. (OR)
b) Give a brief note on flightless birds.
- a) Write about metatherians. (OR)
b) Explain the characters of probable ancestor of mammals.

SECTION – D

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

- Elaborate the evolutionary trends in the origin of birds.
- Explain in detail about accessory respiratory organs in fishes.
- Write an essay on parental care in amphibia.
- Discuss the flight adaptations in birds.
- Describe the adaptations of aquatic mammals.





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B.A. / B.Sc. Degree (Semester) Examinations, April 2019

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)

- The chief function of carbohydrates is to _____.
a) Building of Bones b) Provide energy
c) Building of tissues d) RBC development
- Which one is responsible for the setting up; review and revision of their RDAs?
a) ICMR b) ZSI c) CDS d) MSW
- _____ are the basic units of proteins.
a) Vitamins b) Minerals c) Fat d) Amino acids
- Vitamin D was discovered by McCollum in _____.
a) 1955 b) 1925 c) 1922 d) 1930
- One liter of human milk contains about _____ of calcium.
a) 500 mg b) 300 mg c) 200 mg d) 700 mg
- Copper accumulate in large amounts in liver and lenticular nucleus of the brain is called
a) Dental disease b) Wilson's disease
c) Skin disease d) Dalton's disease
- _____ is universal solvent.
a) H₂O b) Fatty acid c) Carbohydrates d) proteins
- Which one is a food poison forming virus?
a) *Enterovirus* b) *Mycotoxicoses* c) *Aeromonas sp.* d) *Vibrio sp.*
- Salmonella* are produced in stomach _____.
a) High acidity b) Low acidity c) High salt d) Low salt
- Expand : ATA
a) Alimentary Toxic to All b) Alimentary Toxic Aleukia
c) Alimentary Top Aleukia d) Alimentary Toxic Altenene

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SECTION – B

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

- Give a chemical name of Vitamin-E.
- Define biopreservation.
- Expand: FAO.
- Define food poison.
- Write any two food spoilage bacteria.
- Expand: ICMR.
- Write any two water soluble vitamins.

SECTION – C

Answer ALL Questions : (3 × 9 = 27)

- a) Expand and comment on RDA. (OR)
b) Explain the balance diet.
- a) Explain the role of calcium and Iron. (OR)
b) Write a short note on vitamin C.
- a) Discuss the control measures for rodents. (OR)
b) Explain the symptoms and treatment for food poison.

SECTION – D

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

- Explain the physiological functions of food.
- Describe the various methods for food preservation.
- “Marasmus and Kwashiorkor as a protein deficiency disease” –Justify.
- Give a detailed account on the fat soluble vitamins and their deficiency diseases.



8. The transformation of one form from embryo during development to adult is

- a) Metamorphosis
- b) Gastrulation
- c) Differentiation
- d) Dedifferentiation

9. This small region of the gastrula has been a goldmine for the isolation of new molecules involved in cell signalling is known as

- a) Blastula
- b) Gastrula
- c) Organiser
- d) blastocoels

10. The nucleocytoplasmic interaction make changes in the

- a) Nuclear envelop
- b) Nucleus
- c) Chromosome
- d) Golgi complex

SECTION – B

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

- 11. Define Baer's Law.
- 12. Define Parthenogenesis.
- 13. Define fate map in frog.
- 14. Define germ layers.
- 15. Enlist the functions of placenta.
- 16. Define regeneration.
- 17. Define teratogenesis.

SECTION – C

Answer ALL Questions : (5 × 5 = 25)

18. a) Explain the structure of human sperm.

(OR)

b) Write short notes on types of egg.

19. a) Describe the planes of cleavage.

(OR)

b) Write the fate map in Amphioxus.

20. a) Describe the gastrulation process in chick.

(OR)

b) Explain the development of brain in frog.

21. a) List out the role of hormones in Metamorphosis.

(OR)

b) Write short notes on Menstrual cycle.

22. a) Describe the Nuclear transplantation in Acetabularia.

(OR)

b) Write an account on Test tube baby.

SECTION – D

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

- 23. Enumerate the process of Spermatogenesis.
- 24. Explain the physiological and biochemical changes during fertilization.
- 25. Discuss the foetal membranes in chick.
- 26. Describe the events and factors controlling regeneration.
- 27. Write an essay about birth control methods.





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B.Sc. Zoology Degree (Semester) Examinations, April 2019

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)

- The study of the functional aspect of cell is
 - General physiology
 - Cellular physiology
 - Microbial physiology
 - Pathophysiology
- Who introduced the term vitamin?
 - Funk
 - Mc Collum
 - Dam
 - Williams
- A single hemoglobin can carry _____ molecules of O₂.
 - 4
 - 2
 - 5
 - 3
- The heart muscles obtain oxygenated blood from
 - pulmonary artery
 - pulmonary vein
 - coronary arteries
 - coronary sinus
- Excretory product of spider is
 - guanine
 - uric acid
 - urea
 - ammonia
- Stenohaline animal among the following is
 - Phascolosoma
 - Aplysia
 - Arenicola
 - Mytilus
- Longest cell in our body is
 - muscle cell
 - nerve cell
 - epithelial cell
 - hepatic cell
- Neurons that formed spinal cord and brain are
 - sensory neurons
 - motor neurons
 - inter neurons
 - rotator neurons
- Light enters eye through a transparent membrane known as
 - cornea
 - pupil
 - retina
 - iris
- In the pancreas, which are the cells that secrete insulin and decrease the blood levels of glucose?
 - Delta
 - Alpha
 - Beta
 - Gama

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SECTION – B

Answer any FIVE Questions :

(5 × 2 = 10)

- Nyctalopia.
- Pulsatile hearts.
- Excretion.
- Myelinated nerve fibre.
- Cardiac muscles.
- Cochlea
- Circadian rhythm.

SECTION – C

Answer ALL Questions :

(5 × 5 = 25)

- a) Explain the role of fat soluble vitamins in animal life. **(OR)**
b) Write short notes on the physiological role of calcium and iron.
- a) List out the general functions of blood. **(OR)**
b) Comment on respiratory quotient.
- a) Write brief notes on the osmoregulation in fresh water fish. **(OR)**
b) Comment on: i) Ammonotelism ii) Ureotelism
- a) Write about the ultra structure of neuron. **(OR)**
b) Explain the ultra structure of skeletal muscle fibre.
- a) Critically comment on the role of pituitary gland. **(OR)**
b) Explain the structure of human ear.

SECTION – D

Answer any THREE Questions :

(3 × 10 = 30)

- Describe the structure of thyroid gland and the role of thyroid hormones.
- Write detailed account on nerve impulse conduction.
- Describe the mechanism of urine formation.
- Explain the origin and conduction of heart beat.
- Give an account on the digestion and absorption of carbohydrates.



8. The ESR is governed by the balance between pro-sedimentation factors mainly _____.

- a) Fibrin b) Fibrinogen c) Thrombocyte d) All the above

9. _____ is the fluid containing sperm that is released during male ejaculation.

- a) Sperm b) Blood c) Egg d) Milk

10. Bacteria that cause a urinary tract infection make an enzyme that changes urinary nitrates to

- a) Nitrogen b) Nitrites c) Ammonia d) Ascorbic acid

SECTION – B

Answer any FIVE Questions :

(5 × 2 = 10)

11. What is anaemia?

12. Expand: WHO.

13. Write any two uses of X-ray.

14. What is arthritis?

15. Mention the role of centrifuge.

16. Write any two uses of chromatography.

17. Expand: CHD.

SECTION – C

Answer ALL Questions :

(3 × 9 = 27)

18. a) Describe the biosafety levels in clinical laboratories.

(OR)

b) Write the uses of autoclave in research laboratories.

19. a) Describe the principles and applications of colorimeter.

(OR)

b) Comment on haemocytometer.

20. a) Write the working mechanisms of haemoglobinometer.

(OR)

b) Explain the diabetes mellitus.

SECTION – D

Answer any TWO Questions :

(2 × 14 = 28)

21. Describe the medical importance of electrocardiogram.

22. Explain the electron microscope and their applications.

23. Write an essay on semen analysis.

24. Discuss the role of CT and MRI scan.





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B.Sc. (Chem. / Bot.) Degree (Semester) Examinations, April 2019

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

BIOLOGY AND HUMAN WELFARE

Under CBCS – Credit 4

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions :

(10 × 1 = 10)

1. How is the poliomyelitis virus spread?
 - a) By infected mucous
 - b) By a mosquito bite
 - c) By infected stool
 - d) All of the above
2. What type of virus causes rabies?
 - a) Poliovirus
 - b) Lyssavirus
 - c) Hantavirus
 - d) Retrovirus
3. Which of the following describes prokaryotic cell membrane?
 - a) Selectively permeable
 - b) Regulates passage of materials into and out of the cell
 - c) Contains proteins and phospholipids
 - d) Contains metabolic enzymes
4. Tuberculosis is a disease caused by
 - a) *Bordetella pertussis*
 - b) *Streptococcus pyogenes*
 - c) *Mycobacterium tuberculosis*
 - d) *Vibrio*
5. Entamoeba feeds on
 - a) RBC
 - b) Squamous epithelium
 - c) Mucous epithelium
 - d) All the above
6. Which of the following diseases is caused by a nematode?
 - a) Filariasis
 - b) Amoebiasis
 - c) Leprosy
 - d) Poliomyelitis
7. Chandrika is a
 - a) Basket
 - b) Ant well
 - c) Mountage
 - d) Net

8. Which one of the following is the anecic species?
a) *Lambitomarutii* b) *Diplocardia*
c) *Megascolex* d) *Eudrillus*
9. Which is the main source of production of biogas?
a) Fishery wastes b) Cow dung
c) Plant residues d) Poultry droppings
10. Queen is specified for
a) Pollen collection b) Making hive
c) Egg laying d) Collection of food

SECTION – B

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

11. Comment on the polio disease.
12. What are the major symptoms of Tetanus?
13. Write short note on the disease Black Piedra.
14. Mention any two diseases of silkworm and their symptoms.
15. Write down the scope and importance of fish culture.
16. Enlist the medicinal value of honey.
17. Comment on the nutritive values of mushroom.

SECTION – C

Answer ALL Questions : (5 × 5 = 25)

18. a) Illustrate a typical virus and explain it briefly.
(OR)
b) Write down the clinical features of rabies.

19. a) Write a brief account of cholera.
(OR)
b) Discuss about the symptoms, diagnosis and treatment of tuberculosis.
20. a) Explain about the clinical symptoms, treatment and prevention of malaria.
(OR)
b) Write a detailed account of ringworm disease.
21. a) Highlight the steps involved in induced breeding.
(OR)
b) Explain the steps in vermiculture.
22. a) Describe the morphology of Indian Oyster mushroom.
(OR)
b) Enlist the uses of bees wax and bee venom.

SECTION – D

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

23. Discuss the structure, pathogenesis, clinical symptoms and diagnosis of AIDS.
24. Describe the structure of a typical bacterium with a neat labeled diagram.
25. Write about the causative organism, symptoms, prevention and treatment of Amoebic dysentery.
26. Narrate the life cycle of *Bombyx mori*.
27. Explain the steps involved in biogas production with suitable illustrations.



**EVOLUTION**

Under CBCS – Credit 4

Time: **3** HoursMax. Marks: **75****SECTION – A****Answer ALL Questions :****(10 × 1 = 10)**

1. Oparin's concepts regarding the 'origin of organic compounds' is based on the
 - a) Origin of the earth proposed by Sir James Jean
 - b) Abiogenesis theory
 - c) Biogenesis theory
 - d) Cosmozoic theory
2. Analogous organs are those which are

a) Structurally similar	b) Functional similar
c) Both a and b	d) Normally non- functional
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. Which one of the following about Hardy-Weinberg law is correct?
 - a) A simple mathematical model showing how genetic equilibrium can be maintained in a gene pool
 - b) Helps in calculation of gene frequencies
 - c) Helps in the calculation of genotypic frequencies
 - d) All of these

5. New species is develop due to
 a) Isolation and Mutation b) Competition and Mutation
 c) Isolation and Variation d) Competition and Variation
6. The term mimicry was introduced by
 a) Bates b) De Varies c) Darwin d) Jenner
7. Dinosaurs were abundant during the
 a) Permian period b) Triassic period
 c) Tertiary period d) Jurassic period
8. Age of evolution of an animal is measured by
 a) Electron microscope b) Chemical reaction
 c) Radioactive dating d) UV radiation
9. The fossil species *Ramapithicus* was more closely related to
 a) Orangutans b) Gorillas c) Gibbons d) Chimpanzees
10. The law of adaptive radiation was proposed by
 a) Lamarck b) Bates c) Osborn d) De Varies

SECTION – B

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

11. What is biogenesis?
 12. What is Sub- species?
 13. What is Azoic era?
 14. What is precipitin test?
 15. What is industrial melanism?
 16. What is colouration?
 17. What is continental drift hypothesis?

SECTION – C

Answer ALL Questions : **(5 × 5 = 25)**

18. a) Explain the Neo – Lamarckism theory.
 (OR)
 b) Write the embryological evidences in support of evolution.
19. a) Explain the Hardy – Weinberg Law.
 (OR)
 b) What is genetic drift? Enumerate its evolutionary significance.
20. a) Briefly explain the allopatric speciation with examples.
 (OR)
 b) Write briefly about the isolating mechanism in support of evolution.
21. a) Explain the carbon dating method of fossil.
 (OR)
 b) Write about the geological survey of periods.
22. a) Explain the orthogenesis.
 (OR)
 b) Explain the adaptive radiation in mammals.

SECTION – D

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

23. What is fossil? Explain the methods of fossilization.
 24. Explain mimicry with examples.
 25. Explain the theory of Darwinism with examples.
 26. Explain the morphological evidences in support of evolution.
 27. Write an essay on the cultural evolution of man.





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B.Sc. Zoology Degree (Semester) Examinations, April 2019

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

MICROBIOLOGY & IMMUNOLOGY

Under CBCS – Credit 5

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions :

(10 × 1 = 10)

1. _____ introduced vaccination for the prevention of small pox.
a) Edward Jenner b) Bassi c) Lister d) Neisser
2. The bacterial culture can be stored alive for ____ years in mineral oil.
a) 2 b) 3 c) 4 d) 5
3. Penicillium rubrum produces
a) Amatoxin b) Mycotoxin c) Aflatoxin d) Rubratoxin
4. Pick out the soil protozoans
a) *Uroleptus* b) *Navicula* c) *Fragilaria* d) *Cyamella*
5. The vaccine made by Louis Pasteur against cholera was _____.
a) Attenuated vaccine b) Heat killed vaccine
c) Sub unit vaccine d) Live vaccine
6. Diseases like polio, whooping cough, measles, mumps etc. can be avoided by?
a) Medicine b) Vaccination
c) Precautions d) Avoiding contact
7. The thoracic duct serves _____.
a) The lower extremities b) The abdomen
c) The left arm d) All of the above

8. Antigen binding sites of an Ig are located in
a) light chain alone b) Heavy chain alone
c) FC region of the antibody d) Fab region of the antibody
9. Humoral immunity is mediated by
a) B Cells b) Macrophages c) T cells d) All the above
10. The maximum rate of precipitation occurs in
a) zone of antigen excess b) Zone of equivalence
c) Zone of antibody excess d) All the above

SECTION – B

Answer any FIVE Questions :

(5 × 2 = 10)

11. Comment koch's postulates.
12. Define autotrophs.
13. Write short notes on pathogenicity.
14. Expand MHC.
15. Comment Asepsis.
16. Define Rhizobium.
17. Write short notes on vaccines.

SECTION – C

Answer ALL Questions :

(5 × 5 = 25)

18. a) Write about the cultural characteristics of a bacteria.

(OR)

- b) Explain the classification of bacteria.

19. a) Write about fermented food products.

(OR)

- b) Write about faecal streptococci as indicator microbes.

20. a) Elaborate the Etiology ,clinical symptoms and treatment of Aids.

(OR)

- b) Discuss any two fungal diseases.

21. a) Explain the primary lymphoid organs.

(OR)

- b) Elucidate the importance of passive immunity.

22. a) Write about RIA.

(OR)

- b) Explain the type IV hypersensitivity reaction.

SECTION – D

Answer any THREE Questions :

(3 × 10 = 30)

23. Elaborate the reproduction in bacteria.
24. Discuss the physical and chemical methods in food preservation.
25. Explain the transmission, diagnosis, clinical symptoms and preventive measures of cholera.
26. Give an account on vaccination principles and immunization.
27. What is immunodeficiency diseases? Explain its types and diseases.





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B.Sc. Zoology Degree (Semester) Examinations, April 2019

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

DAIRY FARMING

Under CBCS – Credit 4

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions :

(10 × 1 = 10)

1. The nativity of red sindhi is
 a) Maharashtra b) Karachi c) Gujarat d) Burma
2. What is the milk yield of Holstein – Friesian per lactation?
 a) 600kg b) 4000 kg c) 5000 kg d) 6000 kg
3. In cow, where do the digested foodstuffs are absorbed in
 a) small intestine b) omasum c) caecum d) rumen
4. Quantity of green fodder required for the milk yield 6 – 7 liter / day is
 a) 5 – 6 kg b) 4 – 5 kg c) 6 – 7 kg d) 3 – 4 kg
5. The encapsulated rod that live as spore in soil, the *Bacillus anthracis* is a gram _____ bacteria
 a) Gram positive b) Gram negative c) Gram neutral d) Gram mid
6. Rinderpest is caused by
 a) RPV b) HIV c) Retrovirus d) TMV
7. Each alveolus of udder is drained by a small duct called
 a) interlobular b) lobular c) teat cistern d) terminal duct
8. The bacterial contamination of milk can be detected through
 a) sulphuric acid test b) glucose test
 c) manganese test d) methylene blue test

9. The housing system where the feeding of the cow is easier, both rows can be fed without back tracking is

- a) head to head housing system b) tail to Tail housing system
c) head to tail housing system d) tail to head housing system

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

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

SECTION – B

Answer any FIVE Questions :

(5 × 2 = 10)

11. What is meant by dairy farming?
12. Mention the dairy breeds of india.
13. What is silage?
14. State any two bacterial diseases of dairy animals.
15. Mention the common milk products.
16. What is colostrum?
17. How is milk marketing carried out?

SECTION – C

Answer ALL Questions :

(5 × 5 = 25)

18. a) Present the scope of dairy farming.

(OR)

b) Distinguish between cow and buffalow. Name a few exotic breeds of cows.

19. a) Illustrate the digestive system of cow.

(OR)

b) Comment on the common cattle feed and their nutritive value.

20. a) Depict the metabolic diseases of cattle and suggest remedial measures.

(OR)

b) Give an account on mastitis.

21. a) Explain the physiology of milk production.

(OR)

b) Describe the composition of milk.

22. a) How is cow's semen collected and stored?

(OR)

b) How are the dairy cows housed? Mention the equipments used.

SECTION – D

Answer any THREE Questions :

(3 × 10 = 30)

23. Discuss the systems of breeding dairy farm animals.
24. Explain feeding and management of calf and pregnant cow.
25. Elaborate on rinderpest and foot & mouth diseases.
26. Define Pasteurization. Explain the techniques to produce quality milk.
27. "Cooperative societies are a boon to dairy farming" – Justify.





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B.Sc. Zoology Degree (Semester) Examinations, April 2019

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

ENVIRONMENTAL BIOLOGY

Under CBCS – Credit 2

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions :

(10 × 1 = 10)

1. The formation of soil from rock is
 - a) pedology
 - b) pedogenesis
 - c) hydrologic cycle
 - d) All
2. The response of animals to the length of the day is called
 - a) photokinesis
 - b) phototaxis
 - c) phototropism
 - d) photoperiodism
3. The characteristics of colonisation is
 - a) division of labour
 - b) polymorphism
 - c) caste system
 - d) All
4. An animal that only eats the flesh of another animal is called a
 - a) Producer
 - b) Herbivore
 - c) Carnivore
 - d) Omnivore
5. The border between a forest and a grass land is called
 - a) Edge effect
 - b) Niche
 - c) Ecotone
 - d) Ecocline
6. Age pyramid can indicate the stability of a population. Which of the following is not true of age pyramid?
 - a) Triangular age pyramid indicates the growing population
 - b) Bell – shaped age pyramid indicates the stable population
 - c) Urn – shaped age pyramid indicates the declining population
 - d) Triangular age pyramid indicates the population declining



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B.Sc. Zoology Degree (Semester) Examinations, April 2019

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 culture of
 a) earth worm b) Prawns c) Fishes d) silkworm
2. The important edible fish is
 a) Rohu b) Catla c) Wallago d) Clarius
3. Which one of the following is integrated fish farming?
 a) Paddy cum fish culture b) monoculture
 c) Monosex culture d) Polyculture
4. The optimum temperature for fish is _____.
 a) 20 – 25 °C b) 30 – 35 °C c) 35 – 40 °C d) 15 – 20 °C
5. Induced breeding is effective in which of them?
 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. CMFRI is

- a) Central Marine Fish Research Institution
- b) Central Marine Fisheries Research Institute
- c) Central Mariculture Fish Research Institute
- d) Central Marine Fish Recreation Institute

8. The common name of *Carassius auratus*

- a) angel fish
- b) fighter
- c) gourami
- d) gold fish

9. Simplest method of curing fish is

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

10. Which of the following is an endoparasite in fishes?

- a) Argulus
- b) Hemilepsis
- c) Ligula
- d) Lerneae

SECTION – B

Answer any FIVE Questions :

(5 × 2 = 10)

- 11. Write the scope of fish culture.
- 12. Comment on semi intensive culture.
- 13. Comment on sluice gate.
- 14. Define monoculture.
- 15. What is hypophysation?
- 16. Mention the name of fungal disease in fish.
- 17. What is live fish feed?

SECTION – C

Answer ALL Questions :

(3 × 9 = 27)

18. a) Analyse the different types of culture systems in fish.

(OR)

b) Describe the maintenance and management of fish pond.

19. a) Write an account on integrated fish farming with suitable example.

(OR)

b) Write a short note on site selection for fish farming.

20. a) Explain the different types of fish ponds.

(OR)

b) Describe the setting an aquarium.

SECTION – D

Answer any TWO Questions :

(2 × 14 = 28)

- 21. Write an essay on water properties of fish culture with suitable illustrations.
- 22. Explain the induced breeding technique in fish.
- 23. Summarize the morphological features of Indian Major Carps.
- 24. Write an essay on symptoms and treatments of environment and bacterial diseases of fish.





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B.Sc. Zoology Degree (Semester) Examinations, April 2019
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. Native of *Eisenia fetida* is
 - a) India
 - b) America
 - c) China
 - d) Japan
2. Indigenous earthworm species among the is / are
 - a) *Megascolex mauritii*
 - b) *Moniligaster perrier*
 - c) *Metaphire posthuma*
 - d) All the above
3. Criteria for selecting the earthworms for vermicomposting is / are
 - a) Affinity for composting materials
 - b) Resistance to diseases
 - c) Adaptation to climatic changes
 - d) All the above
4. Optimum range of temperature for the culture of earthworm is
 - a) 25 – 30° C
 - b) 15 – 20° C
 - c) 35 – 40° C
 - d) 10 – 15° C
5. Duration of vermicomposting is
 - a) 6 – 8 weeks
 - b) 10 – 12 weeks
 - c) 15 – 20 weeks
 - d) 2 – 3 weeks
6. All of the following enzymes are available in vermicasts, except
 - a) Protease
 - b) Lipase
 - c) Nuclease
 - d) Chitinase
7. For vermiculture, _____ is added if soil is acidic.
 - a) Potash
 - b) Potassium permanganate
 - c) Calcium carbonate
 - d) Sodium chloride



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B.Sc. Zoology Degree (Semester) Examinations, April 2019
Part – IV : Skill Based Subject : Sixth Semester : Paper – III

ZOOLOGY FOR COMPETITIVE EXAMINATION

Under CBCS – Credit 2

Time: **2 Hours**

Max. Marks: **75**

SECTION – A

Answer ALL Questions :

(75 × 1 = 75)

1. Largest animals belongs to class
a) Arthropoda b) Pisces c) Mammalia d) Reptile
2. Vertebrates possess
a) Well developed body cavity with alimentary canal
b) Dorsal tubular nerve cord
c) Ventrally situated heart d) All of these
3. The term Phylum in taxonomy was given by
a) John Ray b) Carolus Linnaeus c) G.L.Cuvier d) All of these
4. Tube feet are the locomotory organs found in
a) Protozoans b) Arthropods c) Echinodermata d) Molluscs
5. All the mammals have hair, but these are absent in order
a) Cetacea b) Primates c) Rodentia d) Chiroptera
6. The basic unit of taxonomy is
a) Genus b) Order c) Class d) Species
7. The disease caused by *Trypanosoma*
a) Sleeping sickness b) Chaga's disease
c) Kala-azar d) Oriental sore
8. Amoebiasis is caused by
a) *Plasmodium vivax* b) *Taeniasolium*
c) *Entamoebahistoltyica* d) *Entamoebagingivalis*

9. The cell drinking phenomenon is termed as
 a) Circumfluence b) Ingestion c) Pinocytosis d) Ciricumvallation
10. Protozoans respire through
 a) Pseudopodia b) Contractile vacuole
 c) General surface d) Cell wall
11. Vector can be defined as
 a) Disease transmitting host
 b) Natural reservoir of disease causing organism
 c) Pathogenic organism
 d) Any kind of disease transmitting organism
12. The first invertebrates to develop a true nervous system are
 a) Sponges b) Coelenterates c) Annelids d) Arthropods
13. Flame cells are the excretory organs of animals belonging to the phylum
 a) Protozoa b) Porifera c) Coelentrata d) Platyhelminthes
14. The filaria parasite is transmitted by
 a) Female culex b) Male culex
 c) Female anopheles d) Male anopheles
15. The head region of tapeworm is known as
 a) Proglottid b) Rostellum c) Acetabulum d) Scolex
16. Which one is hermaphrodite?
 a) Ascaris b) Trichuris c) Megasclex d) Enterobius
17. Roundworms differ from flatworms in having a
 a) Bilateral symmetry b) Cuticle
 c) Longitudinal nerve cord d) Pseudocoel
18. In Ascaris, the excretory organs are
 a) Nephridia b) Kidneys c) Excretory cells d) Flame cells
19. The life span of Ascaris is
 a) More than 30 days b) Six months
 c) Nine months d) About an year

20. Anticoagulant secreted by leech is
 a) Hirudin b) Heparin c) Haematin d) Haemozoin
21. In earthworm, the nephridia collect nitrogenous wastes from
 a) Skin b) Blood
 c) Coelomic fluid d) Blood vessels and coelomic fluid
22. The mouth parts of cockroach are
 a) Cutting and biting type b) Piercing and sucking type
 c) Grasping and sucking type d) Siphoning and sucking type
23. Silk glands are modified
 a) Salivary glands b) Collateral glands
 c) Anal glands d) Mushroom glands
24. A hermit- crab is scientifically known as
 a) Sea anemone b) Sea cucumber c) Sea star d) Sea horse
25. The male and female mosquito can be distinguished by their
 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. Water vascular system is found in
 a) Star fish b) Sea fan c) Shipworm d) Fish
29. Parental care by males is found in
 a) Hippocampus b) Labeo c) Anabes d) Gold fish
30. The oldest living fish is
 a) Coelocanth b) Oiodon c) Sturgeon d) Labeo

31. Living fossil is
a) Dog fish b) Flying fish c) Dodo d) Coelacanth
32. Tooth shaped scales are
a) Cycloid b) Ctenoid c) Ganoid d) Placoid
33. Which is a true fish
a) Jelly fish b) Cuttle fish c) Star fish d) Dog fish
34. The flying frog is
a) Hyla b) Bufo c) Rhacophorus d) Rana
35. The scientific name of peacock is
a) *Pavocristatus* b) *Gallus gallus*
c) *Columbia livia* d) *Homosapiens*
36. The fastest bird that runs on land is
a) Peacock b) Emu c) Penguin d) Ostrich
37. A bat is
a) Mammal b) Reptile c) Bird d) Fish
38. Which bird can fly backwards?
a) Albatros b) Humming bird c) Elephant bird d) Penguin
39. Connecting link between reptiles and birds is
a) Archaepteryx b) Dimetrodon c) Sphenodon d) Dodo
40. Ornythorhynchus is a
a) Dinosaur b) Duck
c) Fossil mammal d) Monotreme mammal
41. The most intelligent ape is
a) Man b) Gorilla c) Gibbon d) Chimpanzee
42. Ovoviviparity is found in
a) Echidna b) Shrew c) Dolphin d) Kangaroo
43. The tail is flattened horizontally in
a) Bony fishes b) Whales c) Sea lions d) Sea anemones

44. Mammary glands are modified
- a) Salivary glands
 - b) Lacrimal glands
 - c) Sweat glands
 - d) Sebaceous glands
45. Scientific name of man is
- a) Dolphins
 - b) *Oractologuscuniculus*
 - c) *Homosapiensfossilis*
 - d) *Homosapiens sapiens*
46. A mammal which never drinks water is
- a) Kangaroo
 - b) Shrew
 - c) Kangaroo rat
 - d) Spiny ant eater
47. What name is given to the scientific study of tissues?
- a) Anatomy
 - b) Cytology
 - c) Histology
 - d) Ecology
48. Distal convoluted tubule of kidney is lined by
- a) Columnar cells
 - b) Cuboidal cells
 - c) Squamous cells
 - d) Cuboidal epithelium with a brush border
49. The mucosa is seen in
- a) Cavities of the respiratory passages
 - b) Cavities of the urogenital tract
 - c) Cavities of alimentary tract
 - d) All of these
50. Oil in the skin is secreted by
- a) Mucous glands
 - b) Sebaceous glands
 - c) Hair follicles
 - d) Sweat glands
51. Red bone marrow is found in
- a) Man
 - b) Fish
 - c) Lizard
 - d) Frog
52. Cartilage is modified
- a) Epithelial tissue
 - b) Muscular tissue
 - c) Connective tissue
 - d) Nerve tissue
53. Blood corpuscles in adults are formed in
- a) Lymphnodes
 - b) Bone marrow
 - c) Liver
 - d) Spleen

54. Hardness of bone is due to deposit of
 a) Calcium carbonate b) Phosphate
 c) Both a and b d) Magnesium
55. The calcium phosphate content in human bones is
 a) 90% b) 52% c) 22% d) 85%
56. Tracheal and bronchial walls consist of
 a) Hyaline cartilage b) Calcified cartilage
 c) Fibrous cartilage d) Elastic cartilage
57. The only movable bone in our body is
 a) Occipital b) Temporal
 c) Mandible d) Mandible and maxilla
58. Life of RBC is
 a) 130 days b) 120 days c) 128 days d) 122 days
59. Scurvy is caused by due to deficiency of
 a) Vitamin C b) Vitamin D c) Vitamin K d) Vitamin A
60. The total iron content of the adult body is normally
 a) 1 to 3 grams b) 5 to 6 grams c) 3 to 5 grams d) 6 to 8 grams
61. Basic unit of protein is
 a) Helical strand b) Peptones c) Amino acids d) Glucose
62. In the liver, the kupffer's cells are
 a) Blood cells b) Regenerative cells
 c) Adipose cells d) Phagocyte cells
63. While swallowing, food is prevented from entering into the nasal cavity by
 a) Epiglottis b) Soft palate c) Tonsils d) Uvula
64. The anhydrous bonds of proteins are called
 a) Glycosidic b) Peptide c) Ester d) Diester

65. Insulin molecule is composed of
 a) 15 amino acids b) 51 amino acids
 c) 18 amino acids d) 26 amino acids
66. The high blood pressure are produced
 a) Liver enlargement b) Chronic kidneydisease
 c) Heart disease d) Brain disease
67. Islets of langerhans secretes
 a) Glucogon b) Insulin c) Enzymes d) Vitamins
68. Kreb's cycle is associated with
 a) Fermentation b) Photosynthesis
 c) Aerobic respiration d) Anaerobic respiration
69. Covering of lung is called
 a) Pericardium b) Perichondrium
 c) Pleural membrane d) Peritoneum
70. The end product of anaerobic respiration is
 a) CO_2 and H_2O b) Lactic acid c) Pyruvic acid d) Fumaric acid
71. Total dissolved solids of rain water is _____
 a) 0.05% b) 0.005% c) 0.00005% d) 0.00005%
72. Pacemaker of the heart is
 a) S.A. node b) A.V. node c) A.V. Septum d) I.A. septum
73. Universal recipient is the person with the blood group
 a) A b) B c) AB d) O
74. Urea is synthesized in
 a) Kidney b) Lungs c) Intestine d) Liver
75. The yellow colour of urine of vertebrates is due to
 a) Cholesterol b) Urochrome c) Uric acid d) Melanin

