

Code No: 6902

Reg. No.....
Sub. Code: PZOM12

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021
FIRST SEMESTER
ZOOLOGY -CORE
CELL AND MOLECULAR BIOLOGY
(for those who joined in July 2017 onwards)

Time : Three hours

Maximum: 75 marks

Part – A (10 X 1 = 10 marks)

Answer all question, choose the correct answer:

1. In prokaryotes _____ are absent.
a. Chromosome b. Nuclear membrane and nucleus c. DNA d. polysomes
2. Who has designed compound microscope?
a. Lamarck b. Darwin c. Balbiani d. Robert hook
3. Respiratory organelles of the cell are?
a. Lysosome b. mitochondria c. glyoxisomes d. paroxisomes
4. Polymorphic cell organelle is _____
a. Ribosomes b. lysosomes c. glogibodies d. EPR
5. Nucleolus was discovered by _____
a. Robert brown b. Robertson c. Funtonna d. Durajdin
6. Cancer cells appearing on mesodermal cells are____
a. Carcinoma b. Sarcoma c. lymphoma d. Leukeimia
7. The chiasmata are seen in the stage _____
a. Zygotene b. Pachytene c. Diplotene d. Diakinesis
8. Semi conservative mode of replication of DNA was experimentally proved by
a. Watson and Crick b. Beadle and Jautum c. Messelson and stahl d. William and Franklin
9. The gene concept was proposed by_____
a. Morga b. Johannson c. Benzer d. Griffith
10. Protein synthesis occurs_____
a. Inside the nucleus b. inside the cytoplasm c. nucleoplasm d. Nucleolus

PART - B (5×5=25 MARKS)

ANSWER ALL QUESTIONS, CHOOSING A OR B. EACH ANSWER SHOULD NOT EXCEED 250 WORDS

Page No. 2

11. a. Write about the general structure of Prokaryotic cell?

OR

b. Describe the principles of phase contrast microscope?

12. a. Describe the structure of Centriole?

OR

b. Explain about the structure of Golgi complex?

13. a. Describe the structure and function of Nucleolus?

OR

b. Give an account on Oncogenes?

14. a. Describe the importance of mitotic cell division?

OR

b. Give an account on Synaptonemal complex?

15. a. Comment on the universality of Genetic code?

OR

b. Give an account on inhibitors of Transcription?

PART - C (5×8= 40 MARKS)

ANSWER ALL QUESTIONS, CHOOSING A OR B. EACH ANSWER SHOULD NOT EXCEED 600 WORDS

16. a. Explain the principle, structure and applications of Compound Microscope?

OR

b. Describe the Types of Fixation in detail?

17. a. "Ribosomes are protein factories" – Discuss.

OR

b. What is ER? Describe the structure, types and functions of Endoplasmic Reticulum?

OR

18. a. Highlight the Characteristic features of Cancer cells?

OR

b. Explain the structure of Polytene Chromosome with diagram?

19. a. Explain the DNA replication of Prokaryotes?

OR

b. Write an essay on meiotic cell division?

20 a. Describe the structure and functions of different types of RNA?

OR

b. Describe in detail the salient features of Genetic Code?

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021
FIRST SEMESTER
ZOOLOGY - CORE
DEVELOPMENTAL BIOLOGY

(for those who joined in July 2017 onwards)

Time : Three hours

Maximum: 75 marks

Part - A (10 X 1 = 10 marks)

Answer all question, choose the correct answer:

- The germplasm theory was proposed by
(a) Schleiden and Schwann (b) August Weismann (c) Ernst Haeckel (d) Van Baer
- Sertoli cells are found in the wall of
(a) epididymis (b) uriniferous tubules (c) seminiferous tubules (d) intestine
- If the first cleavage furrow divides zygote completely into two, the cleavage type is
(a) meroblastic (b) holoblastic (c) equatorial (d) radial
- Discoblastula is found in
(a) R reptiles (b) B birds (c) F fishes (d) All the above
- Which of the following organ is formed during gastrulation?
(a) Gill (b) Vitelline membrane (c) Heart (d) Archenteron
- The telencephalon and diencephalon in higher vertebrates bend downwards is called
(a) cephalic flexure (b) Rathke's Pock (c) Both (a) & (b) (d) olfactory lobes
- Insect metamorphosis having larval stage is called
(a) retrogressive metamorphosis (b) complete metamorphosis
(c) incomplete metamorphosis (d) progressive metamorphosis
- What is the name for the early stage of the amphibian metamorphosis?
(a) Caterpillar (b) Pup (c) Fry (d) Tadpole
- can either be physical or chemical agents that cause the foetus to become malformed
(a) Teratogens (b) Teratogenesis (c) Both (a) & (b) (d) Malignancy
- Spemann called the dorsal lip of blastopore as
(a) Organiser (b) primary organiser (c) Both (a) & (b) (d) neural induction

Part- B (5X5=25 marks)

Answer all questions, choosing either (a) and (b) Each Answer should

11. a) Draw neatly and label the structure of spermatozoa.

not exceed 250 words

(or)

b) Write a note on

(i) Weismann theory of germplasm

(ii) Recapitulation theory

12. a) Give an account on planes of cleavage.

(or)

b) Define blastula. Add notes on its types.

13. a) What is fate map? Explain

(or)

b) Describe the features of gastrulation.

14. a) Write a note in morphological changes associated with metamorphosis.

(or)

b) Explain neuro endocrine control in insect metamorphosis

15. a) Explain curtis experiment to show that the material of gray

crescent acts as neural inductor.

(or)

b) Discuss in brief about the characteristics and types of differentiation.

Part-C (5X8=40marks)

Answer all questions, choosing either (a) and (b) Each Answer should

16. a) Give an account on oogenesis.

not exceed 600 words

(or)

b) Explain any two mechanism of biochemical aspects of fertilization.

17. a) Explain the various biochemical aspects of patterns of cleavage you have studied.

(or)

b) Differentiate blastulation in ascidian and mammals.

18. a) Explain different types of morphogenetic movements occur during gastrulation.

(or)

b) Discuss the development of skin in mammals.

19. a) Give an account on hormonal control of amphibian metamorphosis

(or)

b) Describe the mechanism of hormone during insect metamorphosis

20. a) Name various theories to explain the mechanism of neural induction.

(or)

b) Write an essay on control of differentiation during transcription.

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021
FIRST SEMESTER
ZOOLOGY - CORE
ENDOCRINOLOGY

(for those who joined in July 2017 onwards)

Time : Three hours

Maximum: 75 marks

Part - A (10 X 1 = 10 marks)

Answer all question, choose the correct answer:

1. What are the two major chemical classifications of hormones?
(a)proteins (b)steroids (c) Both(a) &(b) (d)cholesterol
2. Name the signaling which requires physical contacts between the cells involved?
(a) Paracrine signalling (b) Intracellular signaling
(c) Autocrine signalling (d) Juxtacrine signaling
3. Endemic goitre is a state of
(a) increased thyroid function (b) normal thyroid function
(c) decreased thyroid function (d) normal thyroid function
4. Which part of the brain controls the release of hormones from the pituitary gland?
(a) thalamus (b) hypothalamus
(c) medulla oblongata (d) midbrain
5. During the menstrual cycle, a surge of luteinizing hormone causes
(a)menstruation (b)ovaries to produce oestrogen
(c)ovulation (d) corpus luteum to rupture
6. Which of the following change does not occur during ovulation?
(a). cervical mucus becomes watery (b) increase body temp
(c) atrophy of sex organ (d) abdominal discomfort
7. The hormone gastrin is secreted by
(a) Pancreas (b) Liver (c) Stomach (d) Intestine
8. What hormones are produced by the gastrointestinal tract?
(a)gastrin (b)secretin (c)somatostatin (d)All the above
9. In vertebrates, hormones regulate ----behaviour
(a) Maternal (b)sexual (c)scent marking (d)aggressive
10. In insects, the hormonal control of migration is regulated largely by
(a) juvenile hormone (b)neuro hormones
(c) Both(a) &(b) (d)melanocytes stimulating hormone

Part-B (5 x 5=25 marks)

Answer ALL questions choosing either (a) or (b) Each Answer Should not exceed 250 words

11.a) List out the characteristic features of hormones

(or)

b) Enumerate different classes of hormones with their properties

12.a) Explain how hypothalamus controls the secretory activity of the pituitary gland

(or)

b) What are the different mineralocorticoids? Explain

13.a) Give an account on hormonal control of mammary glands

(or)

b) What are the changes that occur in the months during pregnancy?

14.a) How do gastrin and enterogastrone influence the function of stomach?

(or)

b) Why glucose concentration should be regulated?

15.a) Write a note on role of hormones in migration.

(or)

(b) What hormones are involved in regeneration? Explain.

Part- C (5 x 8 = 40 marks)

Answer ALL questions choosing either (a) or (b) Each Answer Should not exceed 600 words

16.a) How does Cyclic AMP exit its effect as second messenger.

(or)

b) What is cell signalling? Describe the role of various receptors in cell signalling

17.a) Explain the role of glucocorticoids in regulation of various metabolism

(or)

b) Describe the effects the insulin on glucose metabolism with mechanism of action.

18a). List out the functions of testosterone

(or)

b) Describe the role of hormone in female sexual cycle

19.a) Write an essay on regulation of mineral metabolism.

(or)

b). Why calcium homeostasis is important? Explain

20.a) Write an essay on hormonal regulation of osmoregulation.

(or)

b) Write an essay on hormone and different types of behaviour.

(6 pages)

Reg. No. :

Code No. : 6905

Sub. Code : PZOM21

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Second Semester

Zoology — Core

MICROBIOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Based on cellularity, microbes are classified into categories
 - (a) Two categories
 - (b) Three categories
 - (c) One categories
 - (d) Four categories

2. The spherical bacterium is called
 - (a) Coccus
 - (b) E-Coli
 - (c) Bacilus
 - (d) Spirulum

3. Louis Pasteur proposed the theory of
- (a) Spontaneous generation
 - (b) Lock and key method
 - (c) Sal gel theory
 - (d) Lamarckism
4. Culture of E.coli in a liquid medium is called
- (a) Petri dish
 - (b) UV Lamph
 - (c) Batch culture
 - (d) Mixotrophs
5. Rhizobium invades the roots of legumes and forms nodules on
- (a) Water
 - (b) Soil
 - (c) Stem
 - (d) Roots
6. Transfer of genetic material from one bacterium to another bacteriophage is called
- (a) Translation
 - (b) Replication
 - (c) Transduction
 - (d) Reduction

7. The WBC count is reduced. This conditions is called
- (a) Thrombo cytopenia
 - (b) Levkopenia
 - (c) Sarcoma
 - (d) Flu
8. As biogas plants use wastes, biogas production technology helps to _____ wastes from the environment.
- (a) Inorganic wastes (b) Organic wastes
 - (c) Dispose organic (d) Mineral wastes
9. The solubilization of metals by microorganism is called
- (a) Bioleaching (b) Metabolism
 - (c) Cytochrome-m (d) Benzonate
10. Chemoautotrophic bacteria can utilize CO₂ as their sole source of
- (a) Aluminium (b) Iron
 - (c) Carbon (d) Oxygen

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

(Draw diagram wherever necessary)

11. (a) Explain five kingdom classification of R.H. Whittaker.

Or

- (b) Explain the industrial production of wine.

12. (a) Write a note on various methods or preservation of milk and milk producers.

Or

- (b) Explain the causes of food spoilage.

13. (a) Explain aerobic and anaerobic respiration.

Or

- (b) Write an essay on nitrogen cycle.

14. (a) Write a note on passive anaphylaxis.

Or

- (b) What is pasteurization and explain its methods.

15. (a) What is the goal of sterilization?

Or

(b) State the Ideal Modern Sewage system.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

(Draw diagram wherever necessary)

16. (a) Identify the passive mechanism by which a bacterium can penetrate a host?

Or

(b) Bring out significance of home canned food.

17. (a) List the various micro organism present in different types of water.

Or

(b) Explain food spoilage and food preservation.

18. (a) Discuss on any three food borne diseases.

Or

(b) What is AIDS? Explain the symptoms and prevention.

19. (a) Explain the tuberculosis and its control measures.

Or

(b) Discuss about the micro organism present in the air and explain influenza.

20. (a) Enlist the Cavalier-Smith's eight Kingdom system of classification and explain.

Or

(b) Write on difference between slow and rapid sand filters and elaborate on disinfection with chemicals.

(6 pages)

Reg. No. :

Code No. : 6907

Sub. Code : PZOM 24

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Second Semester

Zoology — Core

ENTOMOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. The ejaculatory duct is ectodermal in origin, and therefore
 - (a) Cuticle-lined
 - (b) Green gland
 - (c) Royal Jelly
 - (d) Ectadenia

2. The visual pigments occur mainly in these _____.
 - (a) Compound eye
 - (b) Rhabdomeric
 - (c) Pigment cells
 - (d) Crystalline cone

3. Dorsal ocelli occur in larvae of hemimetabolous insects and in nearly all _____.
- (a) Larva (b) Adults
(c) Pupa (d) Plexus
4. The ocelli are present in most insects to some
- (a) time (b) degree
(c) days (d) species
5. _____ are used not only for feeding but also for attack and defence
- (a) Galea (b) Stipes
(c) Mandibles (d) Pharynx
6. The process of moulting is called
- (a) Pupa (b) Demoulting
(c) Instar (d) Ecdysis
7. Linnaeus was influenced a lot by the earlier writings of the English Naturalist _____.
- (a) Milton (b) Linnaeus
(c) John Ray (d) Hexapods

8. ICAR
- (a) Indian Cultural Applied Race
 - (b) Indian Council of Agricultural Research
 - (c) Initial Corp And Roll
 - (d) Inside Care Age Reap
9. Insects are the only invertebrates which passes _____.
- (a) Legs
 - (b) Wings
 - (c) Eye
 - (d) Royal Jelly
10. Mecoptera are known as
- (a) Sinulata
 - (b) Scorpion Flies
 - (c) Mecoptera
 - (d) Eoxenos

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) With an example explain the importance of the taxonomic keys in the identification of Insects.

Or

- (b) Explain cutting and chewing type of mouthparts in insects.

12. (a) Explain the neuroendocrine system of an Insects.

Or

(b) Describe the Jhonston's organ.

13. (a) Explain the structure of circulatory system of Insects.

Or

(b) Discuss the problem of Insects associated with human beings.

14. (a) Write the effectiveness of Inorganic compounds as Pesticides.

Or

(b) List the transmission of disease of mosquitoes.

15. (a) Explain mechanism of pollination in Insects.

Or

(b) Write medicinal uses of Insects.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) List out the biological methods of pest control.

Or

- (b) Discuss the vectors of Lice.

17. (a) Explain Eri Silkworm and applications.

Or

- (b) Describe the mode of infection on Cotton Crops.

18. (a) Write the biology and mode of transmission of diseases and control of Sandfly and Housefly.

Or

- (b) Discuss about recent trends in pest control – Chemosterilants.

19. (a) Explain compound eye in Insects.

Or

- (b) Write about Forensic Entomology.

20. (a) Describe the value of Insects as protein sources of human and animal feeds.

Or

(b) Write about control measures of Insect pest management.

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021
THIRD SEMESTER
ZOOLOGY - CORE
BIOTECHNOLOGY

(for those who joined in July 2017 onwards)

Time : Three hours

Maximum: 75 marks

Part - A (10 X 1 = 10 marks)

Answer all question, choose the correct answer:

1. The first successful transformation of rDNA molecule into a bacterium was carried out by

- a) Nathan, Arber and Smith
b) Watson, Crick and Wilkins
c) Boyer and Cohen
d) Paul Berg

Answer: C

2. The mechanism of intake of DNA fragments from the surrounding medium by a cell is called

- a) conjugation b) transduction c) both a and b d) transformation

Answer: D

3. In pBR 322, pBR stands for

- a) plasmid bacterial recombination
b) plasmid bacterial replication
c) plasmid Boliver and Rodriguez
d) plasmid Baltimore and Rodriguez

Answer: C

4. The bacteria generally used for genetic engineering is

- a) Bacillus b) Pseudomonas c) Agrobacterium d) all the above

Answer: D

5. In monoclonal antibody technology, tumor cells that can replicate endlessly are fused with mammalian cells that produce an antibody. The result of this cell fusion is a

- a) Myeloma b) Natural killer cell c) lymphoblast d) hybridoma

Answer: D

6. Biosensors contains

- a) Immobilized enzymes
b) metal sensing devices
c) mobilized enzymes
d) a bar code sensing device

Answer: A

7. RFLP is used to

- a) construct high resolution linkage maps
- b) identify single gene diseases
- c) construct QTL maps
- d) all of these

8. Industrial level fermentation microorganism Bacillus is used to form the production

- a) Protease
- b) Alpha amylases
- c) Formic acid
- d) both a and b

9. What is the general name for the class of structures made of rolled up carbon lattices?

- a) Nanorods
- b) Nanotubes
- c) Nanosheets
- d) Fullerrods

10. Which disease is a major focus for nanotechnology?

- a) Hair loss
- b) AIDS
- c) Cancer
- d) All the above

PART B – (5 x 5 = 25 marks)

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

Each answer should not exceed 250 words

11. (a) Explain it. Chemical synthesis of oligonucleotides.

Or

(b) What about polymerase chain reaction (PCR).

12. (a) Write short notes on liposome fusion.

Or

(b) Briefly explain. SV40 mediated Gene transfer.

13. (a) Explain it. Human gene therapy

Or

(b) Write short notes on embryo transfer.

14. (a) Describe it. Bioremediation of Industrial waste
Or
(b) Write a methodology involved in Biogas production and its application.
15. (a) Write short notes on interferon.
Or
(b) Discuss about the semi synthetic antibodies.

PART C – (5 x 8 = 40 marks)

- Each answer should not exceed 600 words*
16. (a) Describe the different kinds of Hybridization techniques.
Or
(b) Discuss the different steps involved in Gene cloning with diagram.
17. (a) Give a brief account of different kinds of vectors used for gene cloning.
Or
(b) Give an account on micro injection gene transfer.
18. (a) Give an account on in vitro fertilization and embryo transfer in human.
Or
(b) Write an essay on Cryobiology and its role in Animal biotechnology.
19. (a) What is Single Cell Protein? Discuss about the production of SCP and its health benefits.
Or
(b) Give a brief account of Bioremediation of Industrial wastes.
20. (a) Write an essay on microbial production of antibiotics.
Or
(b) Describe it. Diagnosis kit development for micro analysis

M.SC (CBCS) DEGREE EXAMINATION, APRIL 2021
THIRD SEMESTER
ZOOLOGY

RESEARCH METHODOLOGY

(For those who joined in July 2017 onwards)

Time: Three hours

Maximum: 75 marks

Part - A (10 X 1 = 10 marks)

Answer all question, choose the correct answer:

1. Research is

- (A) Searching again and again (B) Finding solution to any problem
(C) Working in a scientific way to search for truth of any problem (D) None of the above

2. To prevent the contamination of microscopes and surrounding areas disinfect/clean used slides, prepared by student, with

- (A) 70% ethanol and lens paper (B) acetone and lens paper
(C) 5% methylene blue and lens paper (D) water and lens paper

3. Oil immersion objective lens has an NA value of

- (A) 0.65 (B) 0.85 (C) 1.33 (D) 1.00

4. A light microscope is also referred to as a

- (A) Electron microscope (B) Compound microscope
(C) Scanning probe microscope (D) X-ray

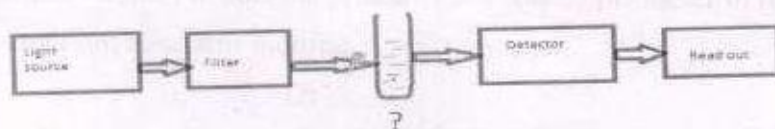
5. A microscope that exposes specimens to ultraviolet, violet, or blue light and forms an image with the light emitted at a different wavelength is called

- (A) phase-contrast microscope (B) dark-field microscope
(C) scanning electron microscope (D) fluorescence microscope

6. Which of the following is the formula for pH calculation

- (A) $\log_{10}[H^+]$ (B) $-\log_{10}[H^+]$ (C) $\log_2[H^+]$ (D) $-\log_2[H^+]$

7. In the diagram of single beam photometer given below, identify the component that is not marked.



- (A) Monochromator (B) Absorption filter (C) Sample holder (D) Interference filter

8. Western blotting is the technique for the detection of

- (A) Specific DNA in a sample (B) Specific RNA in a sample
(C) Specific protein in a sample (D) Specific glycolipid in a sample

9. What is shielding in NMR

- (A) Using a curved piece of metal to block an opponents attack
(B) Putting metal around an Rf source
(C) When the magnetic moment of an atom blocks the full induced magnetic field from surrounding nuclei
(D) Blocking parts of a molecule from Rf radiation

10. Which of the following ion get released from the cation exchange column

- (A) H^+ (B) Na^+ (C) K^+ (D) Ca^{+2}

Part B (5 x 5 = 25 Marks)

Answer all Questions, Choosing either (a) or (b), Each answer should not exceed 250 words

11. (a) Write a short notes on scope and importance of Research.

Or

- (b) Write short notes on different steps involved in research?

12. (a) Phase contrast microscope. Describe it.

Or

- (b) Write short notes on micrometry.

13. (a) Write short notes on microtome.

Or

(b) Write short notes on working principle and role of pH meter in research.

14. (a) Comment on; Southern blotting.

Or

(b) Write short notes on agarose gel electrophoresis.

15. (a) Comment on: ESR.

Or

(b) Differentiate spectrophotometer and spectrofluorimeter.

Part C (5 x 8 = 40 Marks)

Answer all Questions, Choosing either (a) or (b), Each answer should not exceed 600 words

16. (a) Give an account on research report preparation formatting and typing..

Or

(b) Discuss about: Intellectual property rights and its importance in research.

17. (a) Write an essay on working principle and application of florescence microscope.

Or

(b) Describe it; Atomic force and magnetic force microscopes.

18. (a) Write an essay on freezing and freeze drying microtomes?

Or

(b) Given an account on colorimeter principle and its application in research.

19. (a) What is chromatography? Write the types and application of chromatography in research.

Or

(b) Give an account on blotting techniques and its applications on research.

20. (a) Give an account on; spectrofluorimeter working principle and applications

Or

(b) Describe it, Working principle and application of NMR spectrophotometer.

X — X

(6 pages)

Reg. No. :

Code No. : 6911

Sub. Code : PZOM 42

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Fourth Semester

Zoology – Core

GENETICS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The crossing over occurs in the homologous chromosomes only during the _____ stages
 - (a) four stranded
 - (b) tetrad
 - (c) both (a) and (b)
 - (d) two stranded

2. Two allelic genes are located on
- (a) the same chromosome
 - (b) two homologous chromosomes
 - (c) two non-homologous chromosomes
 - (d) any two chromosomes
3. How many consensus sequences for splicing are found in an exon?
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 0
4. Semi conservative replication of DNA was first demonstrated in
- (a) *Drosophila melanogaster*
 - (b) *Salmonella typhi*
 - (c) *Streptococcus pneumoniae*
 - (d) *Escherichia coli*
5. Gene mutation is otherwise known as
- (a) Point mutation
 - (b) Chromosomal mutation
 - (c) Nonsense mutation
 - (d) Duplicate mutation

6. The Kappa particles are transmitted through the
- (a) hyaloplasm
 - (b) nucleoplasm
 - (c) cytoplasm
 - (d) protoplasm
7. Genetic diversity indicates
- (a) large gene pool
 - (b) small gene pool
 - (c) moderate gene pool
 - (d) no gene pool
8. Equilibrium distribution of genotypes for a sex linked trait, where $p+q=1$, is given by
- (a) $p + q = 1$
 - (b) $p^2 + 2pq + q^3$
 - (c) both (a) and (b)
 - (d) $p^2 + q^2$
9. Twins having no variability in their traits are called
- (a) dizygotic twins
 - (b) identical twins
 - (c) both (a) and (b)
 - (d) fraternal twins

10. The movement that is aimed at improving the genetic composition of the human race is called
- (a) euphenics
 - (b) eugenics
 - (c) mutation
 - (d) abnormalities

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short notes on polygenic inheritance.

Or

- (b) List out the Mendelian principles with suitable examples.

12. (a) Describe the chemical composition of genes.

Or

- (b) Discuss about the different types of transposable elements.

13. (a) Write short notes on DNA damage.

Or

- (b) Describe the shell coiling with neat diagram.

14. (a) How do you calculate the gene frequency?
Explain with suitable examples.

Or

- (b) Write short notes on gene pool

15. (a) What is aminocentosis? Explain.

Or

- (b) Write a note on genetic counselling.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the mechanism of crossing over
with suitable examples.

Or

- (b) Give an account on sex determination with
suitable illustrations.

17. (a) Discuss the regulation of gene action with
example.

Or

- (b) Describe the semi conservative model of
DNA replication in *E.coli*.

18. (a) With the help of an illustration explain the method of inbreeding.

Or

- (b) Explain the classification of gene mutation.

19. (a) Write the applications of Hardy-Weinberg law for calculating gene frequencies in Population.

Or

- (b) How do you calculate the gene frequencies for sex linked genes? Explain.

20. (a) What is eugenics? Explain different types of eugenics.

Or

- (b) Discuss briefly on chromosomal abnormalities.

(6 pages)

Reg. No. :

Code No. : 6912

Sub. Code : PZOM 43

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Fourth Semester

Zoology – Core

AQUACULTURE

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. _____ is organized production of a crop in the aquatic medium.
 - (a) Biotechnology
 - (b) Aquaculture
 - (c) Fish breeding
 - (d) Fish culture

2. Seaweeds are a rich source of
 - (a) Carbohydrates
 - (b) Protein
 - (c) Iodine
 - (d) Fat

3. Oyster farming is practiced in
 - (a) Peru and Chile
 - (b) North America
 - (c) Japan
 - (d) China

4. Which of the following is not a variety of seaweed?
 - (a) Green algae
 - (b) Yellow-green algae
 - (c) Red algae
 - (d) Brown algae

5. ——— fishing is used to catch naturally schooling fish which can be attracted to the surface.
 - (a) Pots
 - (b) Pole and line
 - (c) Purse seining
 - (d) Seine netting

6. _____ is one of the method which is used in fish breeding.
- (a) Bundle breeding
 - (b) Stripping
 - (c) Both (a) and (b)
 - (d) Hypophysation
7. Smoking is used as a technique of
- (a) Fish preservation
 - (b) Crop harvesting
 - (c) Crystallisation of sugar
 - (d) Mushroom cultivation
8. _____ is a receptacle that hold one or more fresh water aquatic organism for decorative and pet keeping.
- (a) Aquarium
 - (b) Fresh water aquarium
 - (c) Fish farm
 - (d) Fish pond
9. _____ is bacterial disease in fish.
- (a) Furunculosis
 - (b) Dropsy
 - (c) Vibriosis
 - (d) All the above

10. Fish die in water polluted by sewage due to
- (a) Pathogen
 - (b) Reduction in oxygen
 - (c) Both (a) and (b)
 - (d) Foul smell

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Given an account in biotic factors necessary for fish life.

Or

- (b) Comment on the role of nutrients in lake ecology.

12. (a) Write a note in crafts and gears.

Or

- (b) Give an account on pearl culture.

13. (a) How do you transport live fish and seed? Explain.

Or

- (b) Write short notes on hypophysation and stripping.

14. (a) List on the methods involved in preservation of fish.

Or

- (b) How do you select site for constructional of fish farm?

15. (a) List out the nutritional value of fish.

Or

- (b) Give an account on bacterial and fungal diseases.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Comment on sewage fed fish culture and paddy cum fish culture.

Or

- (b) Differentiate fresh water and marine water fish culture.

17. (a) Write an essay on fishery resources in Tamil Nadu.

Or

- (b) Give an account on ecological characteristics of river.

18. (a) What are transgenic fishes? Explain.

Or

(b) Give an account on common weeds of fish pond and explain different methods of their eradication.

19. (a) How do you construct different types of fish ponds? Explain.

Or

(b) Comment on setting and management of fresh water aquarium.

20. (a) Explain the fisheries management and extension.

Or

(b) Write an essay on biochemical and nutritional value of fish.

Reg. No. :

Code No. : 6913

Sub. Code : PZOE 41

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Fourth Semester

Zoology

Elective – SERICULTURE

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The home of eri silk industry in India is
(a) Tamilnadu (b) Kerala
(c) Assam (d) Karnataka
2. The central silk Board was created in the year
(a) 1929 (b) 1939
(c) 1949 (d) 1959
3. Powdery mildew diseases of mulberry is caused by _____
(a) bacteria (b) fungi
(c) virus (d) protozoa

4. Which of the following pest feeds on the sap of the mulberry?
(a) *Empoasca flavescens*
(b) *Cryptozonia semirugata*
(c) *Myllocerus viridanus*
(d) *Mimastra cyanura*
5. Ishiwate gland is connected with
(a) digestive system
(b) circulatory system
(c) reproductive system
(d) excretory system
6. Silkworms having two generations per year are
(a) bivoltine (b) univoltine
(c) multivoltine (d) polyvoltine
7. Moulting occurs during life
(a) 4 times (b) 3 times
(c) 2 times (d) 1 times
8. Mature larvae is used for
(a) rearing (b) reeling
(c) moulting (d) mounting
9. Pebrine is a _____disease
(a) bacterial (b) viral
(c) fungal (d) protozoan
10. Stifling is _____.
(a) rearing (b) reeling
(c) mounting (d) drying

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Summarise the functions of central silk board of India.
Or
(b) Summarise the grafting procedure in mulberry.
12. (a) Give an account on the viral diseases of mulberry.
Or
(b) Write about the control measures for mulberry pests in general.
13. (a) Write a brief note on voltinism.
Or
(b) Narrate the structure of silk gland.
14. (a) Mention the chemical composition of cocoon.
Or
(b) Describe bed-cleaning.
15. (a) Discuss about pebrine.
Or
(b) Write a note on raw silk.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write an account on moriculture.
Or
(b) Narrate the role central silk board.
17. (a) Write an account on pests of mulberry.
Or
(b) Explain the deficiency of phosphorous and potassium.
18. (a) Classify mulberry & silk worm.
Or
(b) Explain the structure and function of the excretory system of silkworm.
19. (a) Write an essay on the rearing appliances used in silkworm rearing.
Or
(b) What is brushing? Explain the various methods of brushing.
20. (a) Explain the role of pest-uzifly.
Or
(b) Discuss the Raw Silk Marketing.

(6 Pages)

Reg. No. :

Code No. : 6078

Sub. Code : PZOM 31

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

Third Semester

ZOOLOGY - CORE

ANIMAL PHYSIOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answers :

1. The Vitamin E was discovered in the year
(a) 1917 (b) 1918
(c) 1920 (d) 1922
2. Which of the following Biomolecules simply refers to as “Staff of life”?
(a) Lipid (b) Protein
(c) Carbohydrate (d) Minerals

3. _____ forms clots when blood vessels get damaged.
- (a) Platelets (b) Cellulose
(c) Haemoglobin (d) None of the above
4. Normal diastolic pressure in humans is
- (a) 90 mm Hg (b) 30 mm Hg
(c) 80 mm Hg (d) 110 mm Hg
5. Which of the following is an example of anabolic process?
- (a) Digestion (b) Respiration
(c) Photosynthesis (d) Response to stimuli
6. _____ produces urea as the excretory substance in the human body.
- (a) Kidney (b) Liver
(c) Urinary bladder (d) Digestive system
7. Which of the following is known as the “window of the brain”?
- (a) Sensory organ (b) Cranial nerves
(c) Eyes (d) Ganglia

8. What is sclera?
- (a) Cornea
 - (b) White part of the eye
 - (c) Red part of the eye
 - (d) Lens
9. All of the following are hormones of the anterior pituitary except
- (a) Human Growth Hormone (GH)
 - (b) Follicle-Stimulating Hormone (FSH)
 - (c) Parathyroid Hormone (PTH)
 - (d) Thyroid-Stimulating Hormone (TSH)
10. The secretions from which of these glands differs between males and females?
- (a) Adrenal
 - (b) Parathyroid
 - (c) Gonadal
 - (d) Pancreas

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Briefly explain the chemical digestion of protein.

Or

- (b) What about the chemical digestion of fats?

12. (a) List out the factors affecting blood pressure.

Or

- (b) briefly discuss the cardiac cycle and heart sounds.

13. (a) Explain oxygen-haemoglobin dissociation curve.

Or

- (b) Which factors affecting oxygen-haemoglobin dissociation curve?

14. (a) Write the functional properties of synapse.

Or

- (b) Specify the classification of synapse.

15. (a) Write an account on parathyroid gland secretion and their function.

Or

- (b) Explain the HCG.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Specify the mechanism of protein absorption.

Or

- (b) Explain the digestion in small intestine.

17. (a) Write the structure of mammalian heart.

Or

- (b) Describe the cardiac activity with neat sketch.

18. (a) Write the detailed account on pigment of haemoglobin.

Or

- (b) Enumerate the transport of oxygen.

19. (a) Comment on fine structure of skeletal muscle fibre with neat sketch.

Or

- (b) Write the properties and characteristic of reflexes.

20. (a) Elucidate the functions of thyroid hormone.

Or

- (b) What is the physiological function of adrenocortical hormones?
-

(6 Pages)

Reg. No. :

Code No. : 6380

Sub. Code : PZOM 32

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

Third Semester

ZOOLOGY — CORE

BIOTECHNOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answers :

1. The first successful transformation of rDNA molecule into a bacterium was carried out by
 - (a) Nathan, Arber and Smith
 - (b) Watson, Crick and Wilkins
 - (c) Boyer and Cohen
 - (d) Paul Berg

2. The DNA molecule to which the gene of insert is integrated for cloning is called
 - (a) Vector
 - (b) Transformer
 - (c) Carrier
 - (d) None of these
3. Electroporation facilitates introduction of foreign DNA into the target organism by
 - (a) Changing the electric potential of the cell wall
 - (b) Changing the porosity of the cell wall
 - (c) Lysis of the cell wall
 - (d) Active transport across the cell wall
4. The bacteria generally used for genetic engineering is
 - (a) Bacillus
 - (b) Pseudomonas
 - (c) Agrobacterium
 - (d) All the above
5. In monoclonal antibody technology, tumor cells that can replicate endlessly are fused with mammalian cells that produce an antibody. The result of this cell fusion is a
 - (a) Myeloma
 - (b) Natural killer cell
 - (c) Lymphoblast
 - (d) Hybridoma
6. Which one is green manure/biofertilizer
 - (a) sesbania
 - (b) rice
 - (c) oat
 - (d) maize

7. Penicillin production is optimum in
- (a) Discontinuous operation system
 - (b) Continuous operation systems
 - (c) Batch operation systems
 - (d) Unique operation system
8. Industrial level fermentation microorganism bacillus is used to form the production
- (a) Protease
 - (b) Alpha amylases
 - (c) Formic acid
 - (d) Both (a) and (b)
9. What is the general name for the class of structures made of rolled up carbon lattices?
- (a) Nanorods
 - (b) Nanotubes
 - (c) Nanosheets
 - (d) Fullerrods
10. Which choice below best describes the goal for nanotechnology advances in medicine?
- (a) To improve technology for finding to cure diseases
 - (b) Improve the application of cosmetics
 - (c) Increase the production of medicines
 - (d) All the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

11. (a) Explain it. Selection of cDNA libraries using colony hybridization technique.

Or

- (b) What is vector? Write the role of vector in genetic engineering.

12. (a) Write short notes on YAC vectors.

Or

- (b) Briefly explain. Gene transfer by particle bombardment technique.

13. (a) Explain it. Cloning animal dolly.

Or

- (b) Write short notes on organ culture.

14. (a) Differentiate primary and secondary metabolites.

Or

- (b) Write a methodology involved in biogas production and its application.

15. (a) Write short notes on significance of biotechnology in medical field.

Or

- (b) Discuss about the diagnostic kit.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Describe the techniques of PCR and DNA sequencing. Discuss the utility of these techniques in the field of genetic engineering.

Or

- (b) Discuss the role of both restriction and ligase enzymes in rDNA technology.

17. (a) Give a brief account of different kinds of vectors used for gene cloning.

Or

- (b) Give an account on Agrobacterium mediated gene transfer.

18. (a) Give an account of transgenic animals.

Or

- (b) Write an essay on cryobiology and its role in animal biotechnology.

19. (a) What is bioreactor? Discuss about the role of bioreactor on industrial microbial product production with any one suitable example.

Or

- (b) Give a brief account of bioremediation of hydrocarbons.

20. (a) Write an essay on production of pharmaceutical important compounds by genetically engineered organisms.

Or

- (b) Describe it. Drug design and targeting.
-

(6 Pages)

Reg. No. :

Code No. : 6079

Sub. Code : PZOM 33

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

Third Semester

ZOOLOGY - CORE

BIostatistics AND BIOinformatics

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answers :

1. Data originally collected in the process of investigation are known as
 - (a) Foreign data
 - (b) Primary data
 - (c) Third data
 - (d) Secondary data

2. Census is
- (a) The method of planning, organizing and publishing data
 - (b) The method in which no data is collected
 - (c) The method in which data is collected from each and every unit
 - (d) The method in which few units out of the entire population are chosen
3. The mean of ten numbers is 58. If one of the numbers is 40, what is the mean of the other nine?
- (a) 540
 - (b) 60
 - (c) 18
 - (d) 162
4. Which of the following is NOT a common measure of central tendency?
- (a) Mean
 - (b) Mode
 - (c) Median
 - (d) Range
5. What is the probability of getting 1 and 5 if a dice is thrown once?
- (a) $\frac{1}{6}$
 - (b) $\frac{1}{3}$
 - (c) $\frac{2}{3}$
 - (d) $\frac{8}{9}$

6. What will be the probability of getting odd numbers if a dice is thrown?
- (a) $1/2$ (b) 2
(c) $4/2$ (d) $5/2$
7. What is the mean of a chi square distribution with 6 degree of freedom?
- (a) 4 (b) 12
(c) 6 (d) 8
8. Which of these distributions is used for a testing hypothesis?
- (a) Normal distribution
(b) Chi-square distribution
(c) Gamma distribution
(d) Poison distribution
9. The first secondary database developed was
- (a) PRINTS (b) PROSITE
(c) PDP (d) PIR
10. Which of the following is a sequence alignment tool?
- (a) BLAST (b) PRINT
(c) PROSITE (d) PIR

PART B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 250 words

11. (a) Write the biological data of ratio scale.

Or

- (b) Write the source of primary and secondary data.

12. (a) What is chi-square test? Explain its application in biology.

Or

- (b) Comment on characteristic of good average.

13. (a) Explain the types of correlation.

Or

- (b) Comment on basic concept of probability.

14. (a) Definition of F-test formula.

Or

- (b) Write the application of Chi square test with example.

15. (a) Comment on homology.

Or

(b) List out biological databases and retrieval systems.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Explain the significance of the following while collecting of data for a biological investigation
(i) nature of sample (ii) accuracy and precision of data (iii) errors in measurement (iv) significant digits in the data.

Or

(b) Explain the random sampling methods.

17. (a) How to construct the Lorenz curve?

Or

(b) Calculate correlation coefficient of the following data.

Length of fish (cm) 5 3 4 7 6 8 5 3 9 8

Weight of fish (gm) 10 4 6 18 15 21 9 5 22 20

18. (a) Describe the theorems of probability.

Or

(b) Write the importance of normal distribution.

19. (a) Write the techniques of analysis of variance.

Or

(b) Design the procedure for carrying out the sign test.

20. (a) Explain the following BLAST-FASTA and its biological use.

Or

(b) Explain the nucleic acid sequence databases.

(6 Pages)

Reg. No. :

Code No. : 6381

Sub. Code : PZOM 34

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

Third Semester

Zoology — Core

RESEARCH METHODOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answers :

1. Research is
 - (a) Searching again and again
 - (b) Finding solution to any problem
 - (c) Working in a scientific way to search for truth of any problem
 - (d) None of the above

2. Which of the following is the first step in starting the research process
 - (a) Searching source of information to locate problem
 - (b) Survey of related literature
 - (c) Identification of problem
 - (d) Searching for solution to the problem

3. Which of the following is used in electron microscope
 - (a) Electron beams
 - (b) Magnetic fields
 - (c) Light waves
 - (d) Electron beams and magnetic fields

4. Where do we obtain the magnified image of the specimen in SEM?
 - (a) Cathode ray tube
 - (b) Phosphorescent screen
 - (c) Anode
 - (d) Scanning generator

5. Which of the following is not a type of centrifugation
 - (a) Hydro cyclone
 - (b) Tubular centrifuge
 - (c) Microfiltration
 - (d) Disk stack separator

6. Which of the following centrifugation is used to separate certain cell organelles from whole cell
- (a) Rate-zonal centrifugation
 - (b) Normal centrifugation
 - (c) Isopycnic centrifugation
 - (d) Differential centrifugation
7. Chromatography is a physical method that is used to separated and analyse
- (a) Simple mixture (b) Complex mixture
 - (c) Metals (d) Viscous mixture
8. In which type of chromatography the stationary phase held in a narrow tube and the mobile phase is forced through it under pressure
- (a) Column chromatography
 - (b) Planar chromatography
 - (c) Liquid chromatography
 - (d) Gas chromatography
9. Modern methods for separation of isotope is
- (a) Laser separation (b) Chromatography
 - (c) Ionization (d) X ray

10. In accelerating chamber of in mass spectrometer potential difference is
- (a) 500-2000 (b) 600-7000
(c) 300-8000 (d) 700-9000

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

11. (a) Comment on index card and reference cards.
- Or
- (b) Give an account on basic structure of APA formatted book references.
12. (a) Mention the magnification power of microscope.
- Or
- (b) Explain the refractive index of microscope.
13. (a) Write the analytical centrifuge and its application.
- Or
- (b) What is the factors affect the pH measurement?

14. (a) Write the applications of affinity chromatography.

Or

(b) Design the paper electrophoresis and its application.

15. (a) Write the comparison of colorimeter vs spectrophotometer.

Or

(b) Enlist the application of emission spectroscopy.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Write the components of research report.

Or

(b) Elaborate the comment on format of a thesis.

17. (a) Elucidate the electron microscopy with neat diagram.

Or

(b) Write the working mechanism of dark field microscopy.

18. (a) Enumerate the types of centrifuges and their application.

Or

(b) Give an account on cryopreservation of animal organ.

19. (a) Describe the Southern blot methods and its application.

Or

(b) Elucidate the Northern blotting techniques.

20. (a) Describe the NMR working mechanism and its application.

Or

(b) Write the construction of spectrophotometer with diagram.

Reg. No. :

Code No.: 6536

Sub. Code: ZZOM 11

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

First Semester

Zoology - Core

STRUCTURE AND FUNCTION OF INVERTEBRATES

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Systema Naturae was written by
 - (a) Wallace
 - (b) Linnaeus
 - (c) Charles Darwin
 - (d) Aristotle
2. Phylogenetic classification is based on
 - (a) External similarity
 - (b) Common evolution
 - (c) Habit and habitat
 - (d) Utilitarian system

3. Contractile vacuole in a protozoan is responsible for
(a) Ingestion (b) Locomotion
(c) Digestion (d) Osmoregulation
4. Torsion is the characteristic of
(a) Gastropoda (b) Scaphopoda
(c) Pelecypoda (d) Aplacophora
5. Amoeba respire through its
(a) Plasmalemma (b) General body surface
(c) Cytoplasm (d) Pellicle
6. Amoeba shows
(a) Phototaxis (b) Chemotaxis
(c) Thermotaxis (d) All the above
7. Pinctata belongs to the class
(a) Cephalopoda (b) Scaphopoda
(c) Gastropoda (d) Bivalve
8. Shell of Mollusca is secreted by
(a) Ectodermis (b) Endodermis
(c) Mantle (d) All the above
9. The larva of echinoderm shows
(a) Radial symmetry
(b) Biradial symmetry
(c) Pentamerous symmetry
(d) Bilateral symmetry

10. Tube feet of echinoderms help in
(a) Respiration (b) Locomotion
(c) Capture of prey (d) All of these

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Explain the Natural classification.
Or
(b) Differentiate the Acoelom and Pseudocoelom.
12. (a) Describe the food and feeding mechanism of scorpion.
Or
(b) Explain the food and feeding habits of star fish.
13. (a) Write a brief account on aerial respiration.
Or
(b) List out the types of tracheae.
14. (a) Write the evolution of the nervous system.
Or
(b) Write the earthworm nervous system.
15. (a) Enlist the biological importance of trochophore larva.
Or
(b) Write the larval forms of Arthropoda in Nauplius.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Discuss the Binomial nomenclature.
Or
(b) Write a detailed account on taxonomic collection of biological specimens.
17. (a) Explain the digestion of Protozoa.
Or
(b) Describe the digestive system of Prawn.
18. (a) Enumerate the mechanism of respiration invertebrates.
Or
(b) Describe the excretory system of Palaemon.
19. (a) Specify the nervous system of nereis.
Or
(b) Discuss the scorpion nervous system.
20. (a) Write the characteristic of Crustacean and their example any three.
Or
(b) Write the following
(i) Bipinnaria larva
(ii) Brachiolaria larva.

Reg. No. :

Code No. : 6537

Sub. Code : ZZOM 12

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

First Semester

Zoology – Core

COMPARATIVE ANATOMY OF CHORDATES

(For those who joined in July 2021 and onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Name the animal group whose members are considered doubtful chordates
 - (a) Urochordata
 - (b) Hemichordata
 - (c) Cephalochordata
 - (d) All of the above

2. Scales in the shark are
 - (a) Cycloid
 - (b) Ctenoid
 - (c) Placoid
 - (d) Ganoid
3. Hairs in mammals are derivatives of
 - (a) Dermis
 - (b) Epidermis
 - (c) Mesodermis
 - (d) Endodermis
4. Secretion of sebaceous glands in mammals helps mainly in
 - (a) Regulating body temperature
 - (b) Making skin soft and supple
 - (c) Plugging pores of body to keep body warm
 - (d) Killing bacteria upon skin
5. In modern ambhilians, the columella of middle ear is a modified
 - (a) Mandibular
 - (b) Hyomandibular
 - (c) Sphenoid
 - (d) Basisphenoid
6. Large oesophagus is found in
 - (a) Dog fish
 - (b) Frog
 - (c) Sparrow
 - (d) Giraffe
7. Smallest arteries are connected to smallest veins by
 - (a) Capillaries
 - (b) Arterioles
 - (c) Venules
 - (d) Muscles
8. The urodeles conus is replaced by
 - (a) Aorta
 - (b) Vena cava
 - (c) Foramen ovale
 - (d) Bulbus arteriosus

9. Pecten is found in the eye of
(a) Fish (b) Frog
(c) Lizard or snake (d) Bird
10. Which of the following is a visual receptor?
(a) Proprioceptor (b) Thermoreceptor
(c) Exteroceptor (d) Interoceptor

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Comment on Vertebral Column in fishes.
Or
(b) Write the diversity of Chordates.
12. (a) Write an account on feathers.
Or
(b) Comment on scales.
13. (a) Define the axial skeleton and its types.
Or
(b) Explain the bone formation and types.
14. (a) Write the evolution of heart in Vertebrates.
Or
(b) Discuss the structure of neuron.
15. (a) Give an account on Urinary bladder.
Or
(b) Write the four types of Uteri.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Give the common characters to chordates and Higher Non chordates.
Or
(b) Describe the Balanoglossus body wall and their function.
17. (a) Specify the functions of integuments.
Or
(b) Write the integuments in different classes of chordates.
18. (a) Describe the girdles and Limbs in amphibia.
Or
(b) Write the detailed account on functions of endoskeleton.
19. (a) Comment on divisions of nervous system.
Or
(b) Elucidate the Development of brain.
20. (a) Describe the Organ of taste.
Or
(b) Comment on Photoreceptors.

(6 pages)

Reg. No. :

Code No.: 6538

Sub. Code: ZZOM 13

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

First Semester

Zoology - Core

ENVIRONMENTAL BIOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The term ecosystem was first proposed by in
(a) 1937 (b) 1932
(c) 1935 (d) 1936
2. World Environmental day is celebrated on
_____ every year.
(a) 01-05-2001 (b) 05-06-2005
(c) 01-10-2024 (d) 01-12-2025

3. Which of the following term defines the ability of the individual in the population to produce new individuals?
- (a) Dispersion (b) Mortality
(c) Natality (d) Population dispersal
4. Which of the following structure can be seen in the diminishing population?
- (a) Upright (b) Inverted
(c) Bell shaped (d) Urn-shaped
5. Which of the following defines the separation of two different communities?
- (a) Ecotone (b) Edge effect
(c) Ecade (d) Resistance
6. The species that are responsible for making characteristics of the community are called
- (a) Recessive community
(b) Dominant community
(c) Special species
(d) Extraordinary species

7. Among the following climatic factors, which one has the least effect upon a terrestrial ecosystem?
- (a) Temperature variation
 - (b) Wind
 - (c) Conditions of sunlight
 - (d) Availability of water
8. What is the ecological system integrating all living beings and their relationships?
- (a) Total Wild Life (b) Biosphere
 - (c) Lithosphere (d) Hydrosphere
9. Soil is eroded heavily due to deforestation; it affects the flowing of surface water badly. Which of the following is badly affected by these causes?
- (a) Human Resource (b) Ecological System
 - (c) Climate (d) Local Plants
10. The Ozone hole over Antarctica was discovered in
- (a) 1975 (b) 1985
 - (c) 1978 (d) 1987

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) List out the interaction of abiotic and biotic components.

Or

- (b) Write the Principles of limiting factors.

12. (a) List out the characteristic of population growth.

Or

- (b) Comment on life tables and its use in population studies.

13. (a) Briefly explain about the Ecological Pyramids.

Or

- (b) Write notes on thermal stratification.

14. (a) Enlist the terrestrial habitat of deciduous forest system.

Or

- (b) Enumerate the sulphur cycle and its biological effect.

15. (a) What are the causative agents for wild life depletion?

Or

- (b) Explain about the Acid rain and its biological effects

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Describe the Components of environment.

Or

- (b) Describe the ecological Niche and habitat.

17. (a) Give an account on factors affecting the population growth.

Or

- (b) Write the types of population fluctuations.

18. (a) Explain the concept of Climax.

Or

- (b) Enlist the characteristic of community.

19. (a) Describe the Nitrogen cycle and Sulphur cycle.

Or

(b) Enumerate the structure and function of Ecosystem with example.

20. (a) Write a detailed account on Project Tiger.

Or

(b) Write the detailed account on ecological effects of air pollution.

Reg. No. :

(6 pages)

Code No.: 6539

Sub. Code: ZZOM 14

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

First Semester

ZOOLOGY - CORE

BIOCHEMISTRY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

- Smallest particle of an atom which exist is called
 - Matter
 - atom
 - proton
 - electron
- Which one of the following buffers to remove the CO₂?
 - Carbonate
 - Bicarbonate
 - Tris
 - All of the above

3. When D-gulose forms a ring structure,
- (a) a ketone and a hydroxyl group react to form a hemiketal
 - (b) the ring is unstable at neutral pH
 - (c) the ring contains four stereogenic centers
 - (d) an intramolecular reaction creates a glycosidic bond
4. What type of glycosidic bond exists in this disaccharide?
- (a) β 1,3
 - (b) β 2,3
 - (c) α 1,3
 - (d) α 2,3
5. Which of the following enzymes requires adenosine triphosphate to mediate its reaction?
- (a) Argino succinate lyase
 - (b) Arginase
 - (c) Glutaminase
 - (d) Argino succinate synthetase
6. Intermediates of which of the following metabolic pathway have not been used in the synthesis of amino acids?
- (a) Glycolysis
 - (b) Fatty acid biosynthesis
 - (c) Citric acid cycle
 - (d) Pentose

7. The enzyme thiolase catalyse the conversion of
- (a) 2 Acetyl Co A to Acetyl Co A
 - (b) Fatty acid to fatty acyl CoA
 - (c) Succinyl Co A to Succinate
 - (d) Acetyl Co A to Malonyl Co A
8. Which of the following are ketone bodies?
- (a) Pyruvate and lactate
 - (b) Acetoacetate and beta-hydroxy butyrate
 - (c) Lecithin and lysolecithin
 - (d) Succinyl Co A and Succinate
9. Deficiency of vitamin A causes
- (a) Night blindness
 - (b) anemia and bleeding gums
 - (c) scurvy
 - (d) rickets and Osteomalacia
10. Vitamin E is necessary for
- (a) eyes and skin
 - (b) energy production in cells
 - (c) Antioxidant
 - (d) blood clotting

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write the universal solvent properties.

Or

- (b) Derive the Henderson Hassel Balch equation.

12. (a) Describe the Glycolysis.

Or

- (b) Comment on TCA.

13. (a) Comment on Chemical nature of enzymes.

Or

- (b) Write the nutritional classification of amino acids.

14. (a) List out the Functions of Phospholipids.

Or

- (b) Comment on synthesis of Phospholipids.

15. (a) Write the Biochemical function of Vitamin A.

Or

- (b) Comment on Biochemical function of Vitamin D.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Write an account on biological buffers and importance.

Or

- (b) Define the following
i) Bicarbonate buffer
ii) Phosphate buffer

17. (a) Describe the TCA cycle.

Or

- (b) Define the function of Carbohydrates in Cells.

18. (a) Describe the Enzymes.

Or

- (b) Explain the mechanism of enzyme action.

19. (a) Define the Cholesterol biosynthesis.

Or

- (b) Give an account on Hyperlipoproteinemias.

20. (a) Write the biochemical functions of Vitamin C.

Or

(b) Explain the following:

(i) Gout

(ii) Lesch-Nyhan syndrome

Reg. No. :

Code No. : 30918 B Sub. Code : AMZO 21

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Second Semester

Zoology — Main

ANIMAL DIVERSITY — II CHORDATA

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. முதுகு நாணிகளின் நிகரற்ற மிக முக்கியமான பண்பானது

(அ) முதுகுநாண் (ஆ) நரம்பு நாண்

(இ) செவுள்துளை (ஈ) இவையாவும்

The most unique feature of Chordata is

(a) Notochord (b) Nerve chord

(c) Gill slits (d) All of these

2. இள உயிரிவால் பகுதியில் மட்டும் நரம்பு நாண் காணப்படும் உயிரியானது

(அ) ஆம்பியாக்சிஸ் (ஆ) பலனோகுளோசஸ்

(இ) அசிடியா (ஈ) பிளானேரியா

Notochord is restricted only in tail region of larval forms in

(a) Amphioxus (b) Balanoglossus

(c) Ascidia (d) Planaria

3. சுறாவின் வால் துடுப்பு எந்த வகையைச் சார்ந்தது?

(அ) ஹோமோசெர்கல் (ஆ) ஹெட்டிரோசெர்கல்

(இ) மோனோசெர்கல் (ஈ) டைபிசெர்கல்

Which type of tail fin is present in Shark?

(a) Homocercal (b) Heterocercal

(c) Monocercal (d) Diphicercal

4. சுறாமீனில் இவ்வகையான பல்லமைப்பு காணப்படுகிறது

(அ) ஹோமோடோன்ட் (ஆ) பாலிபையோடோன்ட்

(இ) ஹெட்டிரோடோன்ட் (ஈ) (அ) மற்றும் (ஆ)

The type of dentition in Shark is

- (a) Homodont (b) Polyphyodont
(c) Heterodont (d) Both (a) and (b)

5. வால் இல்லா நீர்நில வாழ் உயிரிகள் இந்த வரிசையைச் சார்ந்தது

- (அ) அனூரா (ஆ) யூரேஜலா
(இ) ஏபோடா (ஈ) இவையொன்றுமல்ல

Tail less amphibians are grouped in the order of

- (a) Anura (b) Urodela
(c) Apoda (d) None of these

6. ஊர்வனவற்றுள் பொற்காலமானது

- (அ) சீனோஜாய்க் (ஆ) பேலியோஜாய்க்
(இ) மீசோஜாய்க் (ஈ) ஆர்க்கியோஜாய்க்

Golden age of Reptile is

- (a) Cenozoic (b) Paleozoic
(c) Mesozoic (d) Archaeozoic

7. புறாவில் காணப்படும் காற்று பைகளின் எண்ணிக்கையானது

(அ) 6 (ஆ) 7

(இ) 8 (ஈ) 9

The number of air sacs found in Pigeon is

(a) 6 (b) 7

(c) 8 (d) 9

8. புறாவில் அண்டப்பை காணப்படும் பகுதியானது

(அ) மையப்பகுதி (ஆ) இடப்பகுதி

(இ) வலப்பகுதி (ஈ) முன்பகுதி

The ovary of Pigeon is located at the side of

(a) Centre (b) Left

(c) Right (d) Anterior

9. பெற்றோர் பேணல் மிகுதியாகக் காணப்படுவது

(அ) நீர்நில வாழிகள் (ஆ) ஊர்வன

(இ) பறப்பன (ஈ) பாலூட்டிகள்

Higher level of parental care exhibited by

- (a) Amphibians (b) Reptiles
(c) Birds (d) Mammals

10. முயலில் இவ்வகைப் பற்கள் இல்லாததால் டயாஸ்டிமா உண்டாகிறது

- (அ) வெட்டு பற்கள் (ஆ) கோரை பற்கள்
(இ) கடைவாய் பற்கள் (ஈ) பின் கடைவாய் பற்கள்

Diastema is formed due to absence of

- (a) Incisors (b) Canines
(c) Molars (d) Premolars

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (அ) முதுகுநாணிகளுக்கான நிகரற்ற பண்புகளை வரிசைப்படுத்தி விளக்குக.

Enlist and explain the unique characters of Chordata.

Or

(ஆ) முன் முதுகுநாணிகளின் வகைபாட்டை தந்து பண்புகளைக் குறிப்பிடுக.

Give the classification of Prochordata with their features.

12. (அ) மீன்களின் பொதுப் பண்புகளை வெளிக்கொணர்க.

Elucidate the general characters of Pisces.

Or

(ஆ) சுறா மீனின் புற அமைப்பை படத்துடன் விளக்குக.

Describe the external morphology of Shark with sketch.

13. (அ) நீர்நில வாழ் உயிரிகளின் பொதுப் பண்புகளை விளக்குக.

Explain the general characters of Amphibians.

Or

(ஆ) ஊர்வனவற்றின் பொதுப் பண்புகளை வரிசைப்படுத்துக.

List down the general features of Reptiles.

14. (அ) குயில் இறகு அமைப்பை படத்துடன் விளக்குக.

Describe the structural organization of Quill feather with sketches.

Or

(ஆ) புறாவின் உணவு மண்டலத்தை தெளிவான பாகங்கள் குறித்து படத்துடன் விளக்குக.

With neat labeled sketch explain the digestive system of Pigeon.

15. (அ) முயலின் பற்கள் அமைப்பையும் வகைகளையும் பற்றி குறிப்பு எழுதுக.

Write an account on structure and types of teeth in Rabbit.

Or

(ஆ) முயலின் நுரையீரல் அமைப்பை விளக்குக.

Describe the structure of lung in Rabbit.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words each.

16. (அ) முதுகுநாணியான ஆம்பியாக்சஸின் புறத்தோற்ற பண்புகள் மற்றும் உயிரிய முக்கியத்துவத்தை விவாதிக்க.

Discuss the external features of Amphioxus and its biological significances.

Or

- (ஆ) அம்மோசீட்டஸ் இள உயிரியின் பண்புகள் மற்றும் உயிரிய முக்கியத்துவத்தை புலப்படுத்துக.

Highlight the features and biological significances of Ammocoetus larva.

17. (அ) மீனின் இனப்பெருக்க மண்டலத்தை படத்துடன் விளக்குக.

Describe the reproductive system in fishes with sketch.

Or

(ஆ) மீன்களில் காணப்படும் உபரி சுவாச உறுப்புகள் பற்றி கட்டுரை வரைக.

Write an essay on accessory respiratory organs in fishes.

18. (அ) கீழ்வருவனவற்றின் பண்புகள் மற்றும் உயிரிய முக்கியத்துவத்தைப் பற்றி குறிப்பு எழுதுக.
(i) ஓணான் (ii) டிராக்கோ (iii) கோப்ரா.

Comment on the features and biological significance of the followings (i) Chamelon (ii) Draco (iii) Cobra.

Or

(ஆ) நச்சுப்பாம்புகளை நச்சற்ற பாம்புகளிடமிருந்து எவ்வாறு கண்டறிவீர்? விளக்குக.

How will you identify poisonous snakes from non-poisonous snakes?

19. (அ) பறவைகளின் பொதுப் பண்புகளை விவாதிக்க.

Discuss the general characters of Aves.

Or

(ஆ) பறவைகளின் பறப்புத் தகவமைப்புகளை விளக்குக.

Explain the flight adaptation found in Birds.

20. (அ) முயலின் இதய அமைப்பு மற்றும் வேலை செய்யும் விதத்தை விளக்குக.

Describe the structure and functions of heart in Rabbit.

Or

(ஆ) நீர்வாழ் பாலூட்டிகளின் தகவமைப்புகளை ஒருங்கிணைத்து கட்டுரை வரைக.

Integrate the adaptations of Aquatic Mammals.

Code No: 30927E

Sub. Code: AAZO11

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021

FIRST SEMESTER

ZOOLOGY - Allied

CELL BIOLOGY, GENETICS AND BIOTECHNOLOGY

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum: 75 marks

Part - A (10 X 1 = 10 marks)

Answer all questions, choose the correct answer

Choose the correct answer :

1. அலகுச் சவ்வு கொள்கையை முன் மொழிந்த நபர்
- (அ) டாட்சன் (ஆ) ராயர்ட்சன்
(இ) சாம்சன் (ஈ) டேனியெல்லி

Unit membrane concept was proposed by

- (a) Datson (b) Robertson
(c) Samson (d) Danielli

2. ராட்சத குரோமோசோம்கள் இந்த வகை செல்பிரிதலில் உண்டாகிறது

- (அ) ஏமைட்டாசிஸ் (ஆ) என்டோமைட்டாசிஸ்
(இ) டயாக்கைனசிஸ் (ஈ) மியாசிஸ்

Giant chromosomes are formed as the result of

- (a) Amitosis (b) Endomitosis
(c) Diakinesis (d) Meiosis

3. ஆர்என்ஏ இழையில் மட்டுமே காணப்படும் நைட்டிரஜன் கார பகுதியானது

- (அ) அடினைன் (ஆ) குவானைன்
(இ) சைட்டோசின் (ஈ) யுராசில்

The nitrogenous base confined only in RNA strand is

- (a) Adenine (b) Guanine
(c) Cytosine (d) Uracil

4. மரபணு சமிக்ஞையாக செயல்படும் ஆர் என் ஏ வானது

- (அ) ஆர் ஆர் என் ஏ (ஆ) டி-ஆர் என் ஏ
(இ) எம் ஆர் என் ஏ (ஈ) எஸ் ஆர் என் ஏ

The RNA that serve as genetic code is

- (a) rRNA (b) tRNA
(c) mRNA (d) sRNA

5. கீழ்வருவனவற்றுள் ஒன்று பல்கூட்டு அல்லீல்களுக்கு சான்றாகும்

- (அ) மனிதனின் நிறம் (ஆ) ஏபிஓ - ரத்த வகை
(இ) ஆர் எச் காரணி (ஈ) நிறக்குருடு

One of the following is an example for multiple alleles

- (a) Skin colour in man
(b) ABO-Blood groups
(c) Rh-factor
(d) Colour blindness

6. மனிதனின் சரும நிறம் பாரம்பரிய கடத்தலை கண்டறிந்தவர்

- (அ) டாவன்போர்ட் (ஆ) கர்ட்ஸ்டெய்ன்
(இ) காராடு (ஈ) எப்சிலான்

Inheritance of skin colour in man was established by

- (a) Davenport (b) Curtstein
(c) Garrod (d) Epsilon

7. மனிதனின் பால் நிர்ணயம் இந்த வகையைச் சார்ந்தது

- (அ) XX-XY (ஆ) XX-XO
(இ) AA-XX (ஈ) AA-ZZ

The type of sex determination found in Man is

- (a) XX-XY (b) XX-XO
(c) AA-XX (d) AA-ZZ

8. பிறவி வளர்சிதை மாற்ற பிழையால் விழையும் குறைபாடானது

- (அ) அல்பினிசம்
(ஆ) வழக்கைத்தலை
(இ) கைப்பர்ட்ரைகோசின்
(ஈ) எரித்ரோ பிளாஸ்டோசிஸ் புயுட்டாலிஸ்

The defect occurs as the result of in born errors of metabolism is

- (a) Albinism
(b) Beldness
(c) Hypertrichosis
(d) Erythro blastosis foetalis

9. முதன்முதலாக நகலாக்கம் செய்யப்பட்ட பாலூட்டியானது

- (அ) டோலி (ஆ) மோலி
(இ) போலி (ஈ) சால்லி

The first cloned mammal is

- (a) Dolly (b) Molly
(c) Polly (d) Sally

10. மூலக்கூறு கத்திகளாக அழைக்கப்படுபவைகள்

- (அ) ரெஸ்ட்ரிக்சன் நொதிகள்
(ஆ) டேக்யு பாலிமேரேஸ்
(இ) கோலிசின்
(ஈ) ஒத்த நொதிகள்

Molecular scalpels are

- (a) Restriction enzymes
(b) Taq polymerase
(c) Colison
(d) Iso enzymes

PART B — (5 × 5 = 25 marks).

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (அ) பிளாஸ்மா சவ்வின் திரவ மொசாய்க் மாதிரியின் பண்புகளை எழுதுக.

Write down the features of fluid mosaic model of plasma membrane.

Or

- (ஆ) மைட்டோகாண்ட்ரியாவின் அமைப்பாக்கத்தை விவரிக்க.

Describe the structural organization of mitochondria.

12. (அ) கிளாவர் இலை மாதிரி டி. ஆர். என். ஏ. வின் அமைப்பை விளக்குக.

Explain the structural details of clover leaf model of tRNA.

Or

- (ஆ) புற்று செல்களின் வகைகள் மற்றும் தன்மைகளை ஆராய்க.

Analyse the types and properties of cancer cells.

13. (அ) மனிதனின் சாதாரண மெண்டலின் பண்புகள் பற்றி சிறு குறிப்பு தருக.

Give a brief account on simple mendelian traits in Man.

Or

- (ஆ) Rh காரணி ஒவ்வாமை பற்றி குறிப்பு எழுதுக.

Write short notes on Rh-incompatibility.

14. (அ) மனிதனில் பால் நிர்ணயம் எவ்வாறு நடைபெறுகிறதென விவரிக்க.

Explain how sex is determined in Man.

Or

- (ஆ) டர்னர் சிண்ட்ரோமின் காரணி மற்றும் பண்புகளை ஆய்க.

Examine the causes and features of Turner syndrome.

15. (அ) PBR322 நகலாக்கக்கடத்தியின் ஆக்கம் மற்றும் பண்புகளை விவரிக்க.

Describe the composition and properties of PBR322.

Or

(ஆ) மரபுப்பொறியியலின் அடிப்படை கொள்கையை வெளிக்கொணர்.

Elucidate the basic concepts of genetic engineering.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (அ) உட்கமெணியின் அமைப்பு மற்றும் பணிகளை தொகுத்து எழுதுக.

Summarize the structure and function of nucleus.

Or

(ஆ) மைட்டோகாண்ட்ரியாவின் பணிகளை விவாதிக்க.

Discuss the functions of Mitochondria.

17. (அ) புரத சேர்க்கை நிகழ்வுப்படிசை சித்தரித்து விளக்குக.

Illustrate and explain the events of protein synthesis.

(ஆ) வாட்சன் மற்றும் கிரிக் டி.என்.ஏ இரட்டை இழை மாதிரியின் பண்புகளை புலப்படுத்துக.

Highlight the features of Watson and Crick model of double helix structure of DNA.

18. (அ) தக்க சான்றுடன் பல்கூட்டு அல்லீல்கள் பற்றி விளக்கம் தருக.

Write suitable example explain the concept of multiple alleles.

Or

(ஆ) மனிதனின் சரும நிறம் கடத்தலை செக்கர் சட்டம் கொண்டு விளக்குக.

Explain the inheritance of skin colour in Man with the help of Chekka Board.

19. (அ) பால் சார்பு கடத்தல் என்றால் என்ன? தக்க சான்றுடன் விளக்குக.

What is sex linked inheritance? Explain with suitable example.

Or

(ஆ) மனிதனில் பிறவி வளர்சிதை மாற்றக் குறைபாடுகள் பற்றி கட்டுரை வரைக.

Write an essay on Inborn errors of metabolism in Man.

20. (அ) உயிர் தொழில் நுட்பவியலின் நோக்கம் மற்றும் முக்கியத்துவத்தை விவாதிக்க.

Discuss the scope and importance of Biotechnology.

Or

(ஆ) மரபணு மாற்று விலங்குகளின் பயன்பாடுகளை துல்லியமாக மதிப்பீடு செய்க.

Critically evaluate the applications of transgenic animals.
