R7677	Sub. Code
	509101

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Zoology

STRUCTURE AND FUNCTIONS OF INVERTEBRATES

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Who is father of taxonomy?

   (a) Linnaeus (b) Darwin

   (c) Aristotle (d) Fleming

2. Taxonomy that defines taxa uniquely by shared characteristics not found in ancestral groups and uses inferred evolutionary relationships is called ————

   (a) Binomial (b) Trinomial

   (c) Cladistics (d) Numismatics

3. The symmetrical arrangement of Cnidarians are ————

   (a) Bilateral symmetry

   (b) Radial symmetry

   (c) Asymmetry

   (d) none of these

4. The locomotory organ of Amoeba is

(a) Cilia (b) Flagella

(c) Pseudopodia (d) Parapodia

5. Aristotle lantern is found in ——————

(a) Nereis (b) Sea urchin

(c) Sea anemone (d) Ascaris

6. Flame cells are ——————

(a) locomotory organs

(b) reproductive organs

(c) respiratory organs

(d) excretory organs

7. Limulus are ——————

(a) extinct animals (b) fossils

(c) living fossils (d) none of these

8. Polymorphism is found in

(a) Cnidaria (b) Platyhelminth

(c) Molluscs (d) None of these

9. Metacercaria is a larval form of

(a) Pila (b) Liver fluke

(c) Star fish (d) Sea anemone

10. Epidermis is derived from

(a) endoderm (b) ectoderm

(c) mesoderm (d) none of these

Part B (5 × 5 = 25)

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

11. (a) Write a short account on Binomial nomenclature.

Or

(b) What is the significance of cephalization?

12. (a) Draw the ultrastructure of Cilia.

Or

(b) Differentiate autotropic with heterotrophic nutrition.

13. (a) Give a short account on nervous system in molluscs.

Or

(b) What are green glands and explain their role?

14. (a) Give a short account on colony formation in Obelia.

Or

(b) Briefly discuss about fossil invertebrates.

15. (a) Write short note on exoskeleton in invertebrates.

Or

(b) Briefly discuss about the economic importance of sponges.

Part C (5 × 8 = 40)

Answer any **five** questions.

16. Discuss about multicellularity, colonization and organization of germ layers in invertebrates.

17. Write an account on the development of Coelom in animals.

18. What are the different types of apparatus of nutrition found in invertebrates and how they acquire nutrition?

19. Explain about the nervous and sensory systems of invertebrates.

20. Give a detail account on different types of respiratory systems found in invertebrates.

21. Write an account on the parasites listed by World Health Organization under preventive programme.

22. Discuss about the general features of integument system in invertebrates

23. Write about the parasitic adaptations of invertebrates.

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R7678

Sub. Code
509102

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Zoology

COMPARATIVE ANATOMY OF VERTEBRATES

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Organizing taxonomic information in logical classification is called ————————.

   (a) Systematics (b) Phenetic

   (c) Phylogenetic (d) Dendogram

2. Name the philosopher who first classified organisms?

   (a) Whittekar (b) Carl woese

   (c) Linnaeus (d) Aristotle

3. What is the basis of classification of Protochordata?

   (a) Gut (b) Brain

   (c) Gills (d) Notochord

4. Branchiostoma belongs to

   (a) Urochordata (b) Hemichordata

   (c) Cephalochordata (d) Protochordata

5. In amphibians, Organ of Jacobson is for

(a) Temperature (b) Pressure

(c) Smell (d) Sound

6. Poison glands of snake are modified

(a) Sebaceous glands

(b) Ceruminous glands

(c) Salivary glands

(d) Endocrine glands

7. Preen gland occurs in

(a) Pisces (b) Ayes

(c) Reptilia (d) Mammalia

8. The mammal which possesses both the reptiles and mammalian characters

(a) Marsupials (b) Monotremes

(c) Equus (d) Oryctolagus

9. Petromyzon is a connecting link between

(a) Balanoglossus and Amphioxus

(b) Amphioxus and cyclostoma

(c) Cyclostoma and Pisces

(d) Pisces and amphibians

10. Birds and mammals have

(a) Three chambered heart

(b) Four chambered heart

(c) Six chambered heart

(d) None of the above

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain briefly the neotaxonomy.

Or

(b) Give an account on numerical taxonomy.

12. (a) Mention the general characters of urochordates.

Or

(b) Briefly explain the structural and functional adaptation of fishes with suitable example.

13. (a) Describe in detail about the parental care in amphibians.

Or

(b) Explain the structural and functional adaptations of reptiles.

14. (a) Discuss about the flight adaptation in birds.

Or

(b) Describe the general characters of mammals.

15. (a) Compare and discuss about the brain development in vertebrates.

Or

(b) Explain about zoogeography and types of zoogeographical realms.

Part C

$(5 \times 8 = 40)$

Answer any **five** questions.

16. Define Nomenclature. Illustrate the principle of binomial and trinomial nomenclature.

17. Describe the general characters and phylogenetic considerations of hemichordates.

18. Discuss the structural and functional adaptations of amphibians.

19. Discuss the changes in anatomical details of the heart of vertebrates with suitable diagrams. Differentiate between single circuit and double circuit circulation.

20. Give a detailed account of migration in birds and its significance.

21. Explain different types of integumentary glands in vertebrates.

22. Discuss the evolutionary status and affinities of cyclostomes.

23. Describe the structural and functional adaptation of reptiles.

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R7679	Sub. Code
	509103

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Zoology

BIOCHEMISTRY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. A kinase is an enzyme that.
   (a) Removes phosphate groups of substrates
   (b) Uses ATP to add phosphate group to the substrate
   (c) Uses NADH to change the oxidation state of the substance
   (d) Removes water from double low

2. The carbon dioxide is a primary product of
   (a) Krebs's cycle
   (b) Glycolysis
   (c) Electron transport phosphorylation
   (d) Lactose fermentation

3. Urea is formed from which toxic materials.
   (a) CO_2 (b) Ammonia
   (c) Uric acid (d) All the above

4. Which of the following is the immunoacid?

(a) Histidine (b) Glycine

(c) Cysteine (d) Proline

5. Which of the following repeats an unsaturated fatty acid?

(a) Palmitate (b) Choline

(c) Stearate (d) Oleate

6. Where are the enzymes for β oxidation?

(a) Nucleus

(b) Cytosol

(c) Mitochondria

(d) Golgi complex

7. A double stranded DNA has 30% Thymine the Percentage of cytosine is

(a) 30% (b) 20%

(c) 70% (d) 15%

8. Deoxy ribonucleic nucleotide is a

(a) Primary Alcohol

(b) Secondary Alcohol

(c) Tertiary alcohol

(d) Phenol

9. Lower value of Michaelis constant shows

(a) Greater affinity of the enzyme for the substrate

(b) Less affinity of the enzyme for the substrate

(c) Enzyme is allosteric

(d) None of the above

10. Thiamine deficiency leads to

(a) Scurvy

(b) Beriberi

(c) Night blindness

(d) Pellagra

Part B $(5 \times 5 = 25)$

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

11. (a) Enumerate the biological importance of carbohydrates.

Or

(b) Elucidate glyconeogenesis.

12. (a) Differentiate deamination from transamination.

Or

(b) Write the properties of amino acids.

13. (a) Classify lipids.

Or

(b) Discusses β oxidation.

14. (a) Illustrate the forms of DNA.

Or

(b) Write the biosynthesis of purines.

15. (a) List the water soluble vitamins with example. Add a note on the deficiencies.

Or

(b) Classify Enzymes.

Part C

$(5 \times 8 = 40)$

Answer any **five** questions.

16. Explicate the slips involve in TCA Cycle.

17. Comment on Ramachandran plot.

18. Discusses Elaborate about lipogenesis.

19. Classify the RNA with their functions.

20. Write the structure and function of fat soluble vitamins.

21. Classify the carbohydrate with example.

22. Describe brief about TGL biosynthesis.

23. Discuss elaborately about Fat soluble vitamins and its biological importance.

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R7680	Sub. Code 509104

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Zoology

CELL AND MOLECULAR BIOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. How many fatty acid chains are present in the plasma membrane phospholipids?

   (a) Three (b) Four

   (c) One (d) Two

2. Which cytoplasmic organelle is responsible for toxic protein clearance?

   (a) Golgi complex

   (b) Endoplasmic Reticulum

   (c) Glyoxyscmes

   (d) Lysosomes

3. Cell cycle is rhythmically controlled by ————————

   (a) Cyclin/CDKs

   (b) Growth Hormones

   (c) Insulin

   (d) Acetyl choline

4. Which one of the organelle of sperm contain proteolytic enzyme?

(a) Endoplasmic Reticulum

(b) Acrosome

(c) Mitochondria

(d) Nucleus

5. Which enzyme permanently seals together DNA fragments that have complementary sticky ends?

(a) DNA polymerase

(b) Single-stranded bindingprotein

(c) Reverse transcriptase

(d) DNA ligase

6. Which of the following is an example of wobble?

(a) Amino acids carried to the ribosome to form a polypeptide chain

(b) The excision of introns from mRNA

(c) The binding of a primer to DNA

(d) Four codons can all code for the same- amino acid

7. Smad Transcription factor is associated with following signalling pathway

(a) GPCR (b) TGFβ

(c) Hedgehog (Hh) (d) Wnt

8. Which one is not a second messenger molecule

(a) cAMP

(b) cGMP

(c) 1 ,2-diacylglycerd

(d) Glucose

9. Which is not tumour suppressor gene

(a) BRCA1 (b) NF2

(c) PTC (d) bcl-2

10. Role of p53 protein is

(a) G1 arrest (b) G2 arrest

(c) M-phase arrest (d) None of the all

Part B (5 × 5 = 25)

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

11. (a) Enumerate the membrane transport mechanism of Plasma membrane?

Or

(b) What is cytoskeleton? Discuss what are the types of cytoskeleton fibers?

12. (a) Define Autophagy and its cellular regulations.

Or

(b) Structure the Apoptotic events via mitochondria.

13. (a) Structural difference of Prokaryotic and Eukaryotic RNA Polymerases.

Or

(b) Describe mechanism of eukaryotic RNA Splicing.

14. (a) Explain Receptor tyrosine kinases and its cellular regulation.

Or

(b) Write short about cAMP.

15. (a) Write about Point mutations.

Or

(b) Explain Two Tumour Suppressor genes.

Part C

$(5 \times 8 = 40)$

Answer any **five** questions.

16. Write details about types of membrane transport system in Eukaryotic cells.

17. Elaborate the intracellular vesicular trafficking mechanism.

18. Write about CDKs/Cyclin for cell cycle regulation at different stages.

19. Details on DNA replications and repair mechanism in Eukaryotic cells.

20. Write about sequential events of transcription in Eukaryotic cells.

21. Elaborate the structure and dynamics of G-protein coupled receptor.

22. Write about the cell adhesions and gap junctions molecules and its role.

23. Write details of p53 and its role during cell cycle and tumour development.

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R7681	Sub. Code
	509501

P.G. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Zoology

ENDOCRINOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of this statement is INCORRECT regarding the function of hormones?
   (a) Reproduction and sexual differentiation
   (b) Maintenance of internal environment
   (c) Maintenance of body temperature
   (d) Development and growth
2. Most hormones of the endocrine system are regulated by a
   (a) Negative feedback mechanism
   (b) Positive feedback mechanism
   (c) Hormone-receptor complex
   (d) Hormone-gene complex
3. Which of the following pairs of endocrine gland is located in the brain?
   (a) Pituitary and parathyroid
   (b) Hypothalamus and pineal gland
   (c) Thyroid and pineal
   (d) Hypothalamus and Thymus

4. Difference between Endocrine and Exocrine glands is that

   (a) Endocrine glands release hormones while exocrine glands release waste

   (b) Endocrine glands are interconnected but exocrine glands are totally independent from each other

   (c) Endocrine glands are formed by epithelial tissue, exocrine glands are connective tissues primarily

   (d) Endocrine glands are ductless, exocrine glands release secretions into ducts or at the surface of the body

5. Effects of hypothyroidism include all but this

   (a) Diarrhea (b) Lethargy

   (c) Anorexia (d) Weight gain

6. Insufficient levels of Thyroid Hormone in adults cause

   (a) Goiter (b) Tetany

   (c) Myxedema (d) Cretinism

7. Diabetes Mellitus is a hormonal condition in which

   (a) Ketone bodies increases in urine

   (b) Ketone bodies decreases in Urine

   (c) Urine becomes more dilute

   (d) None of the above

8. Which of the following hormone is a modified amino acid?

   (a) Progesterone (b) Estrogen

   (c) Prostaglandins (d) Epinephrine

9. FSH and LH are collectively known as ————

(a) Neurohomones

(b) Antistress hormones

(c) Gonadotrophic hormone

(d) Emergency hormone

10. The only endocrine glands that lay dormant during childhood to activate at puberty are the

(a) Pancreas (b) Adrenal glands

(c) Thyroid gland (d) Ovaries and testes

Part B ($5 \times 5 = 25$)

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

11. (a) Enumerate the functions of neuroendocrine system.

Or

(b) Classify the hormones based on their mechanism of action.

12. (a) Write a brief note on hormones of pituitary gland.

Or

(b) Write short notes on hormones secreted by pineal bodies.

13. (a) Describe the biosynthesis and synthesis of thyroxine.

Or

(b) Describe the role of hormones in calcium metabolism.

14. (a) Describe the physiological functions of insulin and glucagon.

Or

(b) Draw the structure of adrenal gland and list some of its function.

15. (a) Describe the biosynthesis and functions of testes.

Or

(b) Enumerate the role of hormones in pregnancy.

Part C $(5 \times 8 = 40)$

Answer any **five** of the following questions.

16. Explain the feedback mechanism of hormonal action in detail.

17. Write a note on Parathyroid hormone structure and role of calcitonin in phosphate metabolism.

18. Describe the structure of pituitary gland and mention the functions of any four hormones secreted by it.

19. Name the T3 and T4 components of thyroid hormone. Explain their specific function with a neat sketch of thyroid gland.

20. Explain the structure and functions of thymus gland, with a neat sketch.

21. Describe the biosynthesis and functions of gastro-intestinal hormones.

22. Give an account of cortical hormones and discuss its physiological effects.

23. Hormonal regulation of ovarian cycle in female.

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