

Q.6 Write short notes on any four of the following:

- a) Blastula of amphioxus
- b) Vitellogenesis
- c) Egg of amphioxus
- d) Cortical reaction
- e) Prevention of polyspermy
- f) Regulation of limb development

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**M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Zoology**

GENERAL AND COMPARATIVE ENDOCRINOLOGY

Time: 2½ Hours

Max. Marks: 70

Instructions: 1) Question number 1, 2 and 6 are compulsory.
2) Attempt any two from Question No. 3, 4 and 5.

Q.1 Rewrite the following sentences by choosing the most correct alternative given below:- **14**

1) The cells in the wall of intestine are stimulated to production of secretion by _____.

- | | |
|--------------------|---------------|
| a) Cholecystokinin | b) Bile juice |
| c) Acid in chime | d) Gastrin |

2) The chemical messenger where a neurin contacts its target cells by axonal extension and then release the hormone into a synaptic cleft between two cells is called _____.

- | | |
|-------------------|---------------|
| a) Endocrine | b) Neurocrine |
| c) Neuroendocrine | d) Paracrine |

3) Gonadal hormones called _____ influence sex behavior in the human male.

- | | |
|-----------------|-------------|
| a) Androgens | b) Estogene |
| c) Progesterone | d) Relaxin |

4) _____ is also known as little Gastrin.

- | | |
|----------------|---------------|
| a) I Gastrin | b) II Gastrin |
| c) III Gastrin | d) IV Gastrin |

5) _____ hormone causes the degeneration of the Mullerian duct.

- | | |
|-----------------|------------------------|
| a) Estrogene | b) Anti mullerian duct |
| c) Testosterone | d) None of these |

6) The first hormone to be discovered to gastrointestinal hormone was _____.

- | | |
|--------------------|----------------|
| a) Secretin | b) Gastrin |
| c) Cholecystokinin | d) Substance P |

7) Calcium release from bone, absorption from the gut and reabsorb in the kidney is regulated by _____.

- | | |
|--------------------|------------------|
| a) Thyroid hormone | b) Parathormone |
| c) Steroid hormone | d) Neuropeptides |

Q.2 Long answer type question:- **14**

Describe in detail biosynthesis of amino acids and derivate of steroid hormones.

Q.3 Answer the following.

- | | |
|---------------------------------------|-----------|
| a) Effects of hormones on behaviours. | 07 |
| b) Role of gastrointestinal hormones. | 07 |

Q.4 Explain the following.

- | | |
|--------------------------|-----------|
| a) Role of oestrogen. | 05 |
| b) Islets of Langerhans. | 05 |
| c) Leydig cell | 04 |

- Q.5 Explain in short :**
- a) Homeostasis **07**
 - b) Role of progesterone **07**
- Q.6 Write short notes on any four of the following:** **14**
- a) Growth hormone
 - b) Oxytocin hormone
 - c) Hormone ACTH
 - d) Role of MSH
 - e) Role of hormone in migration
 - f) Lactation and it's regulating

Q.6 Write short notes on any four of the following:

- a) Space physiology
- b) Myogenic heart
- c) Occupational diseases
- d) ECG
- e) Stress management
- f) Neural regulation of heart beat

- Q.4 Explain the following.**
- a) General organization and Classification of Aschelminths. **05**
 - b) Give an account on life Cycle of *Fasciola hepatica*. **05**
 - c) Describe *Hymenolepis nana* with special reference treatment and control. **04**
- Q.5 Explain in short.**
- a) Describe the Life Cycle of *Echinococcus granulosus*. **07**
 - b) Structure and life cycle pattern *Taenia Saginata*. **07**
- Q.6 Write short notes on any four of the following:** **14**
- a) Host – Parasite Interaction
 - b) Geographical distribution of *Schistosoma Mansoni*
 - c) Transmission and pathology of parasitic *Hymenolepis nana*
 - d) Praziquantel
 - e) Classification of Cestodes
 - f) Chemicals and reagents used in preservation of parasitic materials.

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M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018

Zoology

MOLECULAR CYTOGENETICS

Time: 2½ Hours

Max. Marks: 70

Instructions: 1) Question number 1, 2 and 6 are compulsory.
2) Attempt **any two** from Question No. 3, 4 and 5.

- Q.1 Multiple choice questions (Per question 2 marks) (Compulsory):** **14**
- 1) In Prokaryotes Chromatin is formed of _____.
 a) Nucleic acid and proteins
 b) Nucleic acid and carbohydrates
 c) Nucleic acid and lipids
 d) Only Nucleic acid
 - 2) Genetically inactive areas of chromosomes are called _____.
 a) Euchromatin
 b) Heterochromatin
 c) Allochromosome
 d) Telomere
 - 3) Nucleosome core particle is a _____ of basic histones.
 a) Tetramer
 b) Hexamer
 c) Octamer
 d) Decamer
 - 4) The coding sequences in DNA are called _____.
 a) exons
 b) reons
 c) histones
 d) introns
 - 5) Pseudodominance is seen during _____.
 a) Duplication
 b) Deletion
 c) Translocation
 d) Inversion
 - 6) _____ is virus-mediated bacterial DNA transfer.
 a) Transformation
 b) Conjugation
 c) Transduction
 d) Translocation
 - 7) The sex ratio of a normal female in *Drosophila* is _____.
 a) 0.5
 b) 1.0
 c) 1.5
 d) 0.2
- Q.2** How is Cell cycle regulated? Explain molecular basis of cellular check points. **14**
- Q.3 Answer the following.**
- a) Describe cytogenetic effects of non ionizing radiation. **07**
 - b) Genic balance theory. **07**
- Q.4 Explain the following.**
- a) Automated Karyotyping **05**
 - b) Transposable elements and their features **05**
 - c) FISH **04**
- Q.5 Explain in short :**
- a) Chromosomal structural aberrations **07**
 - b) Metabolic disorders with an example. **07**
- Q.6 Write short notes on any four of the following:** **14**
- a) Conjugation in bacteria
 - b) Histones
 - c) Barr bodies
 - d) Telomere
 - e) Imprinting of chromosomes
 - f) DNA ligases.

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M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018
Zoology
BIOCHEMISTRY

Time: 2½ Hours

Max. Marks: 70

Instructions: 1) Question number 1, 2 and 6 are compulsory.
 2) Attempt any two from Question No. 3, 4 and 5.

Q.1 Rewrite the following sentences by choosing the most correct alternative given below:- 14

- 1) The lactose contains glucose and galactose which are joined by _____ linkage.

a) $\alpha - 1 \rightarrow 4$	b) $\beta - 1 \rightarrow 4$
c) $\alpha - 1 \rightarrow 6$	d) $\beta - 1 \rightarrow 6$
- 2) _____ is inhibitor of Cytochrome C oxidase which is part of oxidative phosphorylation

a) Rotenone	b) Amytal
c) Dinitrophenol	d) Cyanide
- 3) _____ amino acid is involved in biosynthesis of pyrimidine nucleotide .

a) Aspartate	b) Histidine
c) Cysteine	d) Phenylalanine
- 4) The low oxygen supply in tissue leads to _____.

a) Anoxia condition	b) Hypoxia condition
c) Lactic acid fermentation	d) Both b and c
- 5) According to IUB nomenclature system the hydrolases enzyme fall in _____ class.

a) First	b) Second
c) Third	d) Fourth
- 6) Some of _____ are autocatalytic molecule and considered as enzyme.

a) RNAs	b) DNAs
c) Carbohydrates	d) Lipids
- 7) Among the following _____ is an example of storage lipid.

a) Cardiolipin	b) Ceramide
c) Phosphatidyle choline	d) Tristearylglycerol

Q.2 Long answer type question:- 14
 Explain in detail classification and nomenclature of enzymes.

Q.3 Answer the following.

- a) Give an account on interconversion of hexoses and pentoses. **07**
- b) Write a note on biosynthesis cholesterol. **07**

Q.4 Explain the following.

- a) Regulation of enzymes **05**
- b) Cooperativity in enzymes **05**
- c) Structure and role of cAMP **04**

Q.5 Explain in short :

- a) Secondary structure of proteins **07**
- b) Redox potential and its measurement **07**

Q.6 Write short notes on any four of the following: **14**

- a) Ribozymes
- b) Energetic of glycolysis
- c) Energy rich bonds
- d) Micro-RNA
- e) Transport of fatty acids to mitochondria
- f) Enzyme activator

- Q.5** a) Explain the cell diversity in early embryo. **07**
b) Explain the principle and methods of gene targeting. **07**
- Q.6** **Write short notes on any four of the following:** **14**
- a) FISH
 - b) Application of genetic engineering in medicine
 - c) Totipotency
 - d) Ribonucleoprotein
 - e) RNA Splicing
 - f) Cell lines

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M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Zoology
APPLIED GEOLOGY

Time: 2½ Hours

Max. Marks: 70

Instructions: 1) Question number 1, 2 and 6 are compulsory.
 2) Attempt any two from Question No. 3, 4 and 5.

Q.1 Multiple choice questions (Per question 2 marks) (Compulsory): **14**

- 1) _____ is the first mammalian clone, created from fully differentiated non-reproductive cell of an adult sheep.
 - a) Chimeric mouse
 - b) Dolly
 - c) Knockout mouse
 - d) All above
- 2) _____ is nutrient rich, natural fertilizer and soil conditioner.
 - a) Urea
 - b) Indol acetic acid
 - c) Vermicompost
 - d) All above
- 3) The process of blood clotting and then the subsequent dissolution of the clot, following repair of the injured tissue, is termed _____.
 - a) Homeostasis
 - b) Coagulation
 - c) Fibrin clot
 - d) Fibrosis
- 4) Antibodies are produced by _____.
 - a) B lymphocytes
 - b) Blood cells
 - c) Complement
 - d) Antigen
- 5) _____ is a strong antibody.
 - a) IgA
 - b) IgG
 - c) IgO
 - d) IgE
- 6) An open neural tube defect _____ which can be detected by amniocentesis.
 - a) Down's syndrome
 - b) Spina bifida
 - c) Turner syndrome
 - d) All above
- 7) _____ is used as bioweapon.
 - a) *Bacillus anthracis*
 - b) E. Coli
 - c) Staphylococcus
 - d) Mycobacterium

Q.2 Long answer type question (Compulsory):- **14**
 Give an account on merits and demerits of Amniocentesis.

Q.3 Answer the following.

- a) Give an account on Biological warfare and its control. **07**
- b) Give an account on important human and veterinary parasites. **07**
 (Protozoa and Helminthes)

Q.4 Explain the following.

- a) Give an account on tests of blood for hepatitis and ELISA. **05**
- b) Give an account on fertility control **05**
- c) Describe monoclonal antibody production and characterization. **04**

Q.5 Explain in short :

- a) Describe the Ovulation induction. **07**
- b) Give an account on T lymphocytes. **07**

Q.6 Write short notes on any four of the following (Compulsory):- **14**

- a) Semen analysis
- b) IVF sterility and its treatment
- c) Innate immunity
- d) Class I and II molecules.
- e) Importance of vermiculture
- f) Separation blood cells

Q.5 Explain in short :

- a) Define poison and give its classification.
- b) Phosphorous cycle

07
07

Q.6 Write short notes on any four of the following:

- a) Energy flow
- b) Heavy metals
- c) Importance of toxicology
- d) Bhopal gas effect
- e) Types of ecosystem
- f) Toxicity

14

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**M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Zoology**

ZOOKEEPING AND ANIMAL HOUSE MANAGEMENT

Time: 2½ Hours

Max. Marks: 70

Instructions: 1) Question number 1, 2 and 6 are compulsory.
2) Attempt any two from Question No. 3, 4 and 5.

Q.1 Multiple choice questions (Per question 2 marks) (Compulsory): **14**

- 1) Red data book provides data on _____.
 - a) Red flowered plants
 - b) Red colored fishes
 - c) List of plant and animals
 - d) Endangered plants and animals
- 2) _____ is one of the most endangered species of Indian birds.
 - a) Bee eater
 - b) Paradise fly catcher
 - c) Owl
 - d) The great Indian bustard
- 3) Ex-situ conservation means _____.
 - a) Conservation of a species by protecting its habitat along with all other species living there
 - b) Conservation of forest eco system
 - c) Conservation of a species outside its natural habitat
- 4) Ethogram is a _____.
 - a) Pictorial catalogs of the behavioral patterns of an organism or a species
 - b) Graphical representation of behavior
 - c) Statistical representation of behavior
 - d) All of above
- 5) Identify the definition for the term zoonotic disease:
 - a) A disease that can be transmitted from humans to animals
 - b) A disease that can be transmitted to zoo animals only
 - c) A disease that is transmitted from zoo animals
 - d) A disease that can be transmitted from animals to humans
- 6) Identification of missing zoo tiger in wild can be done with _____.
 - a) Pug marks
 - b) Dentition
 - c) Band pattern and a photograph
 - d) Fingerprints
- 7) Cryopreservation involves storage of gamets in liquid nitrogen at _____.
 - a) 0°C
 - b) 5°C
 - c) -196°C
 - d) 100°C

Q.2 Long answer type question (Compulsory):- **14**

Explain veterinary services in zoo? Describe common disease and their prevention in zoo reptiles and mammals.

Q.3 Answer the following.

- a) Public awareness programme in a zoo. **07**
- b) What are common mammalian diseases likely to spread from zoo mammals? How they are transmitted to domestic animals. **07**

- Q.4 Answer the following.**
- a) What is Taxidermy? Add a note on its applications. **07**
 - b) Visitor rules regulations and surveillance in a zoo. **07**
- Q.5 Explain in short :**
- a) Explain Housing feeding behavior in crocodile. **05**
 - b) Housing, feeding, behavior in aquatic birds. **05**
 - c) National Park **04**
- Q.6 Write short notes on any four of the following (Compulsory):-** **14**
- a) Rodent management and disinfection procedure
 - b) Behavior of water birds
 - c) Zoo design
 - d) Describe Management of grain eater and birds of prey.
 - e) Snake identification.
 - f) First aid to the zoo animals and visitors.