

<b>Seat No.</b>	
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**M.Sc.(Zoology) (Semester – I)(New)(CBCS) Examination, 2017  
CELL AND MOLECULAR BIOLOGY**

Day & Date: Saturday, 22-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

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

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

- 1) Protein-Lipid-Protein or Sandwich model of plasma membrane was proposed by\_\_\_\_\_
  - a) Overtone.
  - b) Gorter and Grendel.
  - c) Davson and Danielli.
  - d) Robertson.
  
- 2) In the fluid Mosaic model, the fluidity of the membrane is maintained by\_\_\_\_\_
  - a) Lipids.
  - b) Proteins.
  - c) Carbohydrates.
  - d) Glycoproteins.
  
- 3) Mosaic pattern of plasma membrane is due to\_\_\_\_\_
  - a) Carbohydrates.
  - b) Lipids.
  - c) Proteins.
  - d) Sterols.
  
- 4) Simple diffusion is limited to the molecules such as \_\_\_\_\_
  - a) Oxygen
  - b) Fatty acids
  - c) Glucose.
  - d) Amino acids.
  
- 5) In facilitated diffusion the glucose transporter is a \_\_\_\_\_ carrier.
  - a) Uniport.
  - b) Symport.
  - c) Antiport.
  - d) Multiport.

- 6) The Na<sup>+</sup>/K<sup>+</sup> pump is the example of \_\_\_\_\_ ATPase.
- P-type.
  - V-type.
  - F-type.
  - ABC-type.

- 7) Rough endoplasmic reticulum is chiefly concerned with \_\_\_\_\_
- Drug detoxification
  - Protein Synthesis.
  - Carbohydrate metabolism.
  - Calcium storage.

**Q.2** Describe the various models regarding the structure of structure of the Plasma membrane. **14**

**Q.3** Answer the following

- 1) What is antiport transport? Example it with suitable example. **07**
- 2) Describe Na<sup>+</sup>/K<sup>+</sup> ATPase. **07**

**Q.4** Explain the following

- 1) Describe the structure and function of lysosomes. **05**
- 2) Fluid mosaic model **05**
- 3) Describe the structure of nucleus. **04**

**Q.5** Explain in short :

- 1) Describe the structure of Kinesin and their role in the cellular movements. **07**
- 2) What are the cell junctions? Add note on desmosomes. **07**

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

- 1) Transport across gastric epithelium
- 2) Mitochondria
- 3) Golgi apparatus.
- 4) Functions of Endoplasmic reticulum
- 5) Centriole
- 6) Hemidesmata.

Seat No.	
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**M.Sc. (Zoology) (Semester – I) (Old) (CBCS) Examination, 2017**  
**Populations Genetics and Evolution**

Day & Date: Tuesday, 25-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**Instruction :-** 1) Questions 1 is compulsory.  
 2) Figures to the right indicate full marks

- Q.1 Multiple choice questions. (Per question 2 marks) 07**
- 1) Sympatric species that are morphologically similar but reproductively isolated is called \_\_\_\_\_.  
 a) Deme                      b) Species                      c) Subspecies                      d) Sibling
  - 2) According to Mayr (1959), species is \_\_\_\_\_ of evolution.  
 a) Key                                      b) Keystone  
 c) Keypattern                                      d) Keypoint
  - 3) According to Founder Principle when a new population is established in population, its gene pool is not identical with that of parent population because of \_\_\_\_\_.  
 a) Objective error                                      b) Sampling error  
 b) Creative error                                      d) Standard error
  - 4) Which are not vestigial organs \_\_\_\_\_.  
 a) Vermiform appendix                                      b) Coccyx in man  
 c) Nictitating membrane                                      d) Ear pinnae
  - 5) Which is the chemical mutagen effects on nucleotide sequence \_\_\_\_\_.  
 a) 5-Bromouracil    b) 4-Bromouracil    c) 3-Bromouracil    d) 2-Bromouracil
  - 6) Darwin's finches are example of \_\_\_\_\_.  
 a) Reproductive isolation                                      b) Prezygotic isolation  
 c) Post zygotic isolation                                      d) Adaptive radiation
  - 7) Genetic drift is also called \_\_\_\_\_.  
 a) Sewall Wright Effect                                      b) Lamarckism effect  
 c) Drawinism effect                                      d) Mayr Effect
- Q.2 Describe patterns and mechanism of reproductive isolation. 14**
- Q.3 Answer the following:**
- A) Describe Darwin's theory of evolution. 07**
- B) Describe mechanism of speciation. 07**

- Q.4 Explain the following:**
- A) Anatomical evidence in evolution **05**
  - B) Variation adaptation **05**
  - C) Allopatric evolution **04**
- Q.5 Explain in short:**
- A) Give detailed account of destabilizing forces **07**
  - B) Give account on phylogenetic and biological concept of speciation **07**
- Q.6 Write short note on (any four)** **14**
- A) Hardy-Weinderg law
  - B) Vestigial organs
  - C) Theory of chemical origin of life
  - D) Base substitution
  - E) Germplasm theory
  - F) Gene evolution

Seat No.	
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**M. Sc (Zoology) (Semester – II) (New) (CBCS) Examination, 2017**  
**DEVELOPMENTAL BIOLOGY**

Day & Date: Wednesday, 19-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**N.B. :** 1) .Q.1, 2 & 6 are **compulsory**.  
2) Answer any **two** questions from Q. 3, 4 and 5

**Q.1 Choose the correct alternative given in the bracket. 14**

- 1) \_\_\_\_\_ occurs when sperm and egg interact.
  - a) Conjugation
  - b) Fertilization
  - c) Cleavage
  - d) Development
  
- 2) Embryonic stem cells are derived from \_\_\_\_\_.
  - a) Blastocyst
  - b) Gastrula
  - c) Ectoderm
  - d) All three germ layers
  
- 3) \_\_\_\_\_ is cell division without growth.
  - a) Cleavage
  - b) Fertilization
  - c) Development
  - d) Differentiation
  
- 4) In the lancelet, the zygote undergoes cleavage forming a solid ball of cells of uniform size, called a \_\_\_\_\_.
  - a) Morula
  - b) Blastula
  - c) Gastrula
  - d) coelom
  
- 5) The nervous system develops from the \_\_\_\_\_.
  - a) ectoderm
  - b) mesoderm
  - c) endoderm
  - d) portions of all the above
  
- 6) A tube of tissue formed by a thickening and rolling up of the neural plate during embryonic neurulation called.
  - a) Neurocoel
  - b) Neural groove
  - c) Neurospore
  - d) Neural tube
  
- 7) \_\_\_\_\_ gives rise to segmental muscles of body and also produce(s) the vertebral bones.
  - a) The notochord
  - b) The archenteron
  - c) The neural tube
  - d) Somites

**Q.2 Describe Frogs egg and give in detail the process of gastrulation in frog. 14**

**Q.3 Answer the following :**

- 1) Capacitation. 07
- 2) Structure of hen's egg. 07

**Q.4 Explain the following :**

- |                                   |           |
|-----------------------------------|-----------|
| 1) Organogenesis.                 | <b>05</b> |
| 2) Regeneration                   | <b>05</b> |
| 3) Regulation of limb development | <b>04</b> |

**Q.5 Explain in short:**

- |  |           |
|--|-----------|
| 1) How anterior-posterior axis is specified in Drosophila? | <b>07</b> |
| 2) Cell Apoptosis with reference to the type studied.      | <b>07</b> |

**Q.6 Write short notes (any four):**

- |                             |           |
|-----------------------------|-----------|
| 1) Blastula of amphioxus    | <b>14</b> |
| 2) Vitellogenesis           |           |
| 3) Egg of mammal            |           |
| 4) Cortical reaction        |           |
| 5) Prevention of polyspermy |           |
| 6) Epiboly.                 |           |

Seat No.	
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**M.SC.(Zoology)(Semester – II) (New) (CBCS) Examination, 2017  
General and Comparative Endocrinology (HCT 2.2)**

Day & Date: Friday, 21-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**Instruction :- 1) Q.1,2 & 6 are compulsory.  
2) Answer any two questions from Q.3,4,5**

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

- 1) The metabolism of circulating \_\_\_\_\_ occurs mainly in liver by orthomethylation and oxidative deamination by COMT and MAO.  
a) Peptide hormones                      b) Steroid hormone  
c) Neurotransmitters                      d) Catecholamines
- 2) The \_\_\_\_\_ gene is another gene that may be critical in ovary determination.  
a) Sry                      b) sfl                      c) sox9                      d) wnt4
- 3) Which of the following is not a steroid hormone?  
a) Androgen    b) Aldosterone    c) estrogen    d) Thyroxine
- 4) In humans, the major gene for \_\_\_\_\_ resides on short arm of Y chromosome.  
a) SRY                      b) SFI                      c) SOX 9                      d) TDF
- 5) Bombycol is a pheromone secreted by the body of \_\_\_\_\_ insects.  
a) Wasp                      b) Housefly    c) Spider                      d) Silkworm
- 6) Skin allergy can be treated by \_\_\_\_\_.  
a) Oxytocin                      b) Epinephrine  
c) Gluco-corticoids                      d) Testosterone
- 7) The receptors for protein hormones are present on \_\_\_\_\_.  
a) Nucleus                      b) Endoplasmic reticulum  
c) Cytoplasm                      d) Cell surface

**Q.2 Long answer type questions: 14**  
Give an account of classification of hormones and its chemical nature.

**Q.3 Answer the following: 07**  
**A) Hormonal role in secretion, transportation and degradation. 07**  
**B) Juvenile hormone and its control. 07**

<b>Q.4 Explain the following:</b>	
A) Ecdysome hormone	05
B) Hormonal role in sex differentiation	05
C) Oestrogen in females	04
<b>Q.5 Explain in shorts:</b>	
A) Hormones of anterior pituitary gland	07
B) Pars intermedia and its hormones	07
<b>Q.6 Write short notes on any four:</b>	14
1) Action of hormone in differentiation in genital ducts.	
2) a cells of pancreas	
3) Gastrin of stomach	
4) Role of secretion in intestine	
5) Homeostasis	
6) Sertoli cell of testis	



Seat No.	
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**M.SC. (Zoology) (Semester – II) (New) (CBCS) Examination, 2017  
ENVIRONMENTAL PHYSIOLOGY**

Day & Date: Monday, 24-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

- N.B.:-**
- 1) **Questions 1 is compulsory.**
  - 2) **Figures to the right indicate full marks**

**Q.1 Rewrite the following sentences by choosing the most correct alternatives given below: 07**

- 1) People living at high altitudes have \_\_\_\_\_
  - a) more better digestive system
  - b) have better phagocytosis processes
  - c) have increased immunity
  - d) have more hemoglobin in blood
  
- 2) In an adult normal blood pressure 75 to 90 mm of mercury is \_\_\_\_\_
  - a) Systolic pressure
  - b) Diastolic pressure
  - c) Peristalsis pressure
  - d) Water pressure
  
- 3) "lub" sound is produced when the \_\_\_\_\_
  - a) After ventricles are fully contracted
  - b) After ventricles start to relax
  - c) After bicuspid and tricuspid valves suddenly close
  - d) After semilunar valves are closed
  
- 4) Who was the first to describe the "fight or flight response" \_\_\_\_\_
  - a) Walter B. Cannon
  - b) Sigmund Freud
  - c) Atkinson Potter
  - d) Mrunal Sengupta
  
- 5) A bean shaped nucleus is characteristics of \_\_\_\_\_
  - a) lymphocytes
  - b) phagocytes
  - c) monocytes
  - d) polymorph
  
- 6) During acclimatization to high altitude all of the following take place except: \_\_\_\_\_
  - a) Increase in minute ventilation
  - b) Increase in the sensitivity of central chemoreceptors
  - c) Increase in the sensitivity of carotid body to hypoxia
  - d) Shift in the oxygen dissociation curve to the left
  
- 7) Sound which has Jarring effect on ears is
  - a) Noise
  - b) Music
  - c) Pleasant sound
  - d) Soul music

<b>Q.2</b>	Describe Space physiology.	<b>14</b>
<b>Q.3</b>	<b>Answer the following:</b>	
	A) Describe neural and chemical regulation of heart beat.	<b>07</b>
	B) Describe man machine and environment system.	<b>07</b>
<b>Q.4</b>	<b>Explain the following:</b>	
	A) Describe concept of homeostasis	<b>05</b>
	B) ECG	<b>05</b>
	C) Stress and strain	<b>04</b>
<b>Q.5</b>	<b>Explain in short:</b>	
	A) Industrial health hazard	<b>07</b>
	B) Describe acclimatization	<b>07</b>
<b>Q.6</b>	<b>Write short note on (any four):</b>	<b>14</b>
	A) Myogenic heart	
	B) Cardiac cycle	
	C) Fatigue	
	D) Blood corpuscles	
	E) Stress management	
	F) High altitude physiology	

Seat No.	
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**M.SC.(Zoology) (Semester – II) (New) (CBCS) Examination, 2017  
HELMINTHOLOGICAL**

Day & Date: Monday, 24-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**Instruction :-** 1) Questions 1, 2 and 6 are compulsory.  
2) Attempt **any two** from question number 3, 4 and 5.

**Q.1 MCQ (per question 2 marks) (Compulsory):**

**14**

- 1) What helminth is responsible for causing the greatest number of worm infection worldwide?
  - a) *Enterobiusvermicularis*
  - b) *Ascarislumbricoides*
  - c) *Strongyloidesstercoralis*
  - d) *Trichinellaspiralls*
  
- 2) The adult tapeworm of *Echinococcusgranulosus* is found in the intestine of:
  - a) Humans
  - B) Sheep
  - c) Dog
  - d) Cattle
  
- 3) In infection with *Taeniasolium*, man can serve as the:
  - a) definitive host
  - b) intermediate host
  - c) definitive and/ or the intermediate host
  - d) none of the above
  
- 4) Humans can serve as both the intermediate and definitive host in infection caused by:
  - a) *Enterobiusvermicularis*
  - b) *Hymenolepis nana*
  - c) *Schistosomaja ponicum*
  - d) *Ascarislumbricoides*
  
- 5) The miracidial hatching test helps to demonstrate the viability of:
  - a) eggs of *Taenia* species
  - b) eggs of *Schistosoma* species
  - c) eggs of hookworm species
  - d) eggs of *Opisthorchis*
  
- 6) A 45 year old hunter developed fever, myalgia, and periorbital edema. He has a history of bear meat consumption. The most likely causative agent is:
  - a) *Toxoplasma gondii*
  - b) *Taeniasolium*
  - c) *Hymenolepis nana*
  - d) *Trichinellaspiralis*
  
- 7) Worldwide, the most prevalent helminth to infect humans is:
  - a) *Enterobiusvermicularis*, the pinworm
  - b) *Ascarislumbricoides*
  - c) *Taeniasaginata*, the beef tapeworm
  - d) *Schistosomamansoni*, one of the blois flukes

- Q.2 Long answer type question( compulsory):** **14**
- 1) Give an account on life cycle, pathogenicity, diagnosis and treatment of *Dipylidiumcaninum*.
- Q.3 Answer the following:**
- A) Give an account on Nutritional requirements in helminthes. **07**
- B) General organization and morphology of the parasitic nematodes occurring in digestive tract of man. **07**
- Q.4 Explain the following:**
- A) General organization and classification of Platyhelminthes. **05**
- B) Give an account on life Cycle of Schistosomahaematobium. **05**
- C) Describe Taeniasaginatawith special reference treatment and control. **04**
- Q.5 Explain in short:**
- A) Describe the Life cycle of Wuchereriabancrofti **07**
- B) Structure and life cycle pattern Echinococcousgranulosus **07**
- Q.6 Write short note on (any four):** **14**
- A) Host- Parasite Interaction
- B) Geographical distribution of Fasciola hepatica
- C) Transmission and pathology of parasitic Hymenolepis nana
- D) Antihelminthic drugs
- E) Classification of Nematodes
- F) Chemical and reagents used in preservation of parasitic materials

<b>Seat No.</b>	
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**M.Sc. Zoology (Semester – II)(Old)(CBCS) Examination, 2017**  
**COMPUTATIONAL BIOLOGY**

Day & Date: Wednesday, 19-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**N.B.:** 1) Q1, 2 & 6 are **compulsory**.

2) Answer **any two** question from 3,4 and 5.

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

- 1) If we divide the distribution into 100 equal parts, the points of division are called\_\_\_\_\_
  - a) Quartile.
  - b) Percentile.
  - c) Deciles.
  - d) None of the above.
  
- 2) \_\_\_\_\_is defined as the difference between highest and lowest value taken by the variable.
  - a) Mean.
  - b) Median.
  - c) Range.
  - d) Mode.
  
- 3) The diagrams obtained by taking classes on X axis and corresponding frequencies along Y axis is called\_\_\_\_\_
  - a) Polygon.
  - b) Histogram.
  - c) Frequency curve.
  - d) Ogive curve.
  
- 4) The equation used for prediction or estimation is\_\_\_\_\_.
  - a) Corellation.
  - b) Histogram.
  - c) Mean deviation.
  - d) Regression.
  
- 5) Highly +ve correlation can be determined if value of r is\_\_\_\_\_
  - a) 0.98
  - b) 0.68
  - c) 0.42
  - d) 0.52

- 6) If two coins are tossed simultaneously than probability of getting two heads is \_\_\_\_\_
- a)  $1/2$
  - b)  $1/3$
  - c)  $1/4$
  - d) 1
- 7) The table giving the frequencies for different class interval is known as \_\_\_\_\_
- a) Mean
  - b) Frequency table
  - c) Median
  - d) Bivariate table

- Q.2** Explain various methods of studying coefficient of correlation. **14**
- Q.3 Answer the following:**
- A)** Describe different measures of dispersion. **07**
  - B)** Write a note on histogram. **07**
- Q.4 Explain the following:**
- A)** Chi square test **05**
  - B)** Requisites of good average **05**
  - C)** Measures of central tendency **04**
- Q.5 Explain in short :**
- A)** State formula for finding A.M, Median and mode for continuous frequency distribution **07**
  - B)** Define coefficient of variation **07**
- Q.6 Write short notes on any four:** **14**
- A)** Graphical representation with pie chart
  - B)** Hypothesis test
  - C)** Student t- test
  - D)** ANOVA
  - E)** Normal distribution
  - F)** Sequencing Analytical Techniques for DNA.

Seat No.	
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**M.Sc.– Zoology (Semester – II) (Old) (CBCS) Examination, 2017  
General and Comparative Endocrinology**

Day & Date: Friday, 21-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**N.B. :** 1) Q.1,2 and 6 are compulsory.

2) Attempt **any two** questions from Q. 3, 4 and 5.

**Q.1 Choose correct alternatives: (Per question 2 marks) 14**

- 1) Corpus allatum Secretes \_\_\_\_\_hormone.
  - a) Juvenile
  - b) Ecdysone
  - c) Parathormone
  - d) Insulin
  
- 2) \_\_\_\_\_hormone stigmulates parental behavior.
  - a) TH
  - b) Lactogenic
  - c) PTH
  - d) FSH
  
- 3) In case of insects chromatophorotropic substance is presented \_\_\_\_\_ganglion.
  - a) Cerebral
  - b) Thorasic
  - c) Abdominal
  - d) Sub oesophageal
  
- 4) Secretion of \_\_\_\_\_increases fear behavior.
  - a) L.H.
  - b) ACTH
  - c) Glucagon
  - d) Trypsin
  
- 5) Cushing syndrome is due to hyper secretion of cortisole by \_\_\_\_\_.
  - a) Thyroid gland
  - b) Pancrease
  - c) Adrenal cortex
  - d) Parathyroid
  
- 6) Amylase is secreted by \_\_\_gland.
  - a) Salivary
  - b) Mammary
  - c) Adrenal
  - d) Intestinal
  
- 7) Gastric gland secretes a hormone called \_\_\_\_\_.
  - a) MSH
  - b) Gastrin
  - c) Amylase
  - d) Hyluronidase

**Q.2 Long answer type question (compulsory):**  
Describe in detail role of sex hormones in chordates. **14**

**Q.3 Answer the following:**

A) Glucose homeostasis **07**

B) Role of parathyroid hormone **07**

<b>Q.4 Explain the following:</b>	
A) Role of Oxytocin	<b>05</b>
B) ADH (Anti Diuretic Hormone)	<b>05</b>
C) Functions of MSH	<b>04</b>
<b>Q.5 Explain in short:</b>	
A) Hormonal role in behavior	<b>07</b>
B) Somatotrophic hormones	<b>07</b>
<b>Q.6 Write short notes <u>any four</u> Compulsory.</b>	<b>14</b>
1) Glucagon hormone	
2) Ecdysone hormone	
3) ACTH	
4) Steroid hormone	
5) Role of gastrin hormone	
6) Role of FSH	



Seat No.	
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**Zoology (Semester – II) (Old) (CBCS) Examination, 2017**  
**DEVELOPMENT BIOLOGY**

Day & Date: Monday, 24-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

**N.B. :** 1). Questions Q.1, Q. 2 and 6 are **Compulsory**.  
2) Attempt **any two** from Q.3, 4 and 5

**Q.1** MCQ (per question 2 marks):

**14**

- 1) Embryonic stem cell are derived from \_\_\_\_\_.
  - a) Blastocyst
  - b) Gastrula
  - c) Ectoderm
  - d) All three germ layers
  
- 2) Which of the following series of events represents the path of vertebrate development?
  - a) Formation of blastula, cleavage, neurulation, cell migration, organogenesis, growth.
  - b) Formation of blastula, cleavage, gastrulation, neurulation, cell migration, organogenesis, growth.
  - c) Cleavage, formation of blastula, gastrulation, neurulation, cell migration, organogenesis, growth.
  - d) Cleavage, gastrulation, formation of blastula, neurulation cell migration, organogenesis, growth.
  
- 3) Gastrulation in Amphioxus occurs by \_\_\_\_\_.
  - a) Involution
  - b) Ingression
  - c) Invagination
  - d) Delamination
  
- 4) trophoblast cells in mammals give to \_\_\_\_\_.
  - a) ampulla
  - b) uterus
  - c) chorion
  - d) amnion
  
- 5) The technique of producing a genetically identical copy of an organism by replacing the nucleus of an unfertilized ovum with the nucleus of body cell from organism is
  - a) Test tube baby
  - b) Cloning
  - c) In vitro fertilization
  - d) All a, b and c.
  
- 6) The study of degenerative change in aging is called.
  - a) Developmental biology
  - b) Paedology
  - c) Gerontology
  - d) Chronology
  
- 7) \_\_\_\_\_ is the process of selection of activation of some genes by a cell, which are not activated by other cell of the embryo.
  - a) Cell induction
  - b) Cell transformation
  - c) Cell differentiation
  - d) Cell mediation

<b>Q.2</b>	Describe in detail the process of fertilization and capitation in mammals.	<b>14</b>
<b>Q.3</b>	<b>Answer the following :</b>	
	1) Regeneration in Hydra.	<b>07</b>
	2) Structure of hen's egg	<b>07</b>
<b>Q.4</b>	<b>Explain the following:</b>	
	1) Cloning with an example.	<b>05</b>
	2) Gastrulation in frog.	<b>05</b>
	3) Regulation of limb development.	<b>04</b>
<b>Q.5</b>	<b>Explain in short</b>	
	1) How anterior – posterior axis is specified in Drosophila?	<b>07</b>
	2) Apoptosis with reference to the type studied.	<b>07</b>
<b>Q.6</b>	<b>Short Notes (Any Four)</b>	<b>14</b>
	1) Stem cells	
	2) Vitellogenesis	
	3) Cleavages in Frog	
	4) Cortical reaction	
	5) Prevention of polyspermy	
	6) Cloning	

Seat No.	
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**M.Sc. (Zoology) (Semester – II) (Old) (CBCS) Examination, 2017**  
**ENVIRONMENTAL PHYSIOLOGY**

Day & Date: Wednesday, 26-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

- N.B. :** 1) Questions 1, 2 and 6 are **Compulsory**.  
 2) Attempt **any two** questions from question 3, 4 and 5.  
 3) Draw **neat** labeled diagrams **wherever** necessary.  
 4) Figures to the **right** indicate **full** marks.

**Q.1 A) Multiple Choice Questions** (Rewrite the sentence with correct answer) **14**

- 1) Which situation does not contribute to a raised body temperature:
 

a) Hibernation	b) Infection
c) Hyperthermia	d) Excitement
  
- 2) Identify a possible site for taking a pulse in a conscious animal:
 

a) Femoral artery	b) Digital artery
c) Coccygeal artery	d) All of the above
  
- 3) Which of the following phrases best describes homeostasis:
  - a) The ability of the body to constantly change its internal environment
  - b) The body's natural tendency to change its internal temperature based on its external temperature
  - c) The relatively constant internal physical and conditions that organisms maintain despite the external environment
  - d) None of the above
  
- 4) What does the liver do when blood glucose level is particularly low?
  - a) send a signal to your brain that makes you feel hungry for glucose-rich foods.
  - b) release a large quantity of bile
  - c) release stored glucose to keep the level of sugar from dropping to levels that inhibit life function
  - d) All the above
  
- 5) Regular muscular contractions that move food through the digestive tract
 

a) bolus	b) chyme
c) peristalsis	d) pepsin
  
- 6) A protein that is capable of speeding up a chemical reaction.
 

a) fiber	b) vitamins
c) enzyme	d) fat

- 7) The most serious environmental effect posed by hazardous wastes is
- a) Air pollution.
  - b) Contamination of groundwater.
  - c) Increased use land for landfills.
  - d) Destruction of habitat.

- Q.2** Write an account on stress management **14**
- Q.3 Answer the following:**
- 1) Environmental stress due to temperature **07**
  - 2) BMR **07**
- Q.4 Explain the following**
- 1) Cardiac cycle **05**
  - 2) Respiration in mammals **05**
  - 3) Environmental health hazard **04**
- Q.5 Explain in short:**
- 1) Myogenic heart **07**
  - 2) Transport of gases **07**
- Q.6 Short Notes (Any Four)**
- 1) Occupational stress **14**
  - 2) Levels of adaptation
  - 3) Acclimatization
  - 4) Digestion in mammals
  - 5) Space physiology
  - 6) Prevention of occupational stress

Seat No.	
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**M. Sc Zoology (Semester – III) (Old) (CGPA) Examination, 2017**  
**WILD LIFE AND CONSERVATION BIOLOGY**

Day & Date: Thursday, 20-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B. :**
- 1). Questions 1 from section 2 and 6 is Compulsory.
  - 2) Attempt **any two** questions from question 3, 4 and 5.
  - 3) Answer of Section I, II and III are to be written in same Answer book.
  - 4) Draw **neat** labeled diagrams **wherever** necessary.
  - 5) Figures to the **right** indicate **full** marks.

**(Section-I)**

**Q.1 A) Choose the correct alternative given in the bracket. 14**

- 1) In ecology, a \_\_\_\_\_ is a *statistic* which is intended to measure the biodiversity of an ecosystem.
 

a) Correlation	b) Population
c) Sampling	d) Diversity index
  
- 2) \_\_\_\_\_ represents energy flow.
 

a) Food webs	b) Food chains
c) Food pyramids	d) All above
  
- 3) The vibrations produced by earthquakes are detected, recorded and measured by an instrument called as \_\_\_\_\_.
 

a) Electrocardiogram	b) Seismogram
c) Cardiogram.	d) Phonogram.
  
- 4) The intermediate transitional zone between two ecological communities is known as \_\_\_\_\_.
 

a) Ecology	b) Exobiology
c) Ecotone	d) Ecosphere.
  
- 5) In Ecological pyramid study each level of the pyramid is called \_\_\_\_\_.
 

a) Eco level	b) Bio level
c) Mass level.	d) Tropical level.
  
- 6) The basic level of the Ecological pyramid is \_\_\_\_\_.
 

a) Secondary consumer	b) Producers.
c) Primary consumer	d) Tertiary consumer
  
- 7) Earth Summit at Rio-de-Janeiro was related to \_\_\_\_\_.
  - a) Soil fertility
  - b) Survey of natural resources
  - c) Conservation of environment

d) Preservation of afforestation

**(Section –II)**

**Q.2** What are the different natural factors affecting ecosystem? Add a note on Landslides. **14**

**Q.3 Answer the following :**

1) Discuss in detail different types of traditional fishing methods **07**

2) Give an account on Red data book **07**

**Q.4 Explain the following:**

1) Give an account on Western Ghats in India **05**

2) Quantifying community diversity **05**

3) Deforestation **04**

**Q.5 Explain in short**

1) Renewable sources. **07**

2) Effect of Volcanoes on Ecosystem **07**

**(Section –III)**

**Q.6 Short Notes (Any Four)**

1) Food Chain **14**

2) Ecological indicators.

3) Wild life (Protection) Act

4) Community

5) Ecological Succession-Aquatic

6) Great Indian Bustard

Seat No.	
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**M.Sc. Zoology(Semester – III) (Old) (CGPA) Examination, 2017**  
**BIOCHEMISTRY**

Day & Date: Tuesday, 25-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

**Note:** 1) Question number 1 and 2 are **compulsory**.  
2) Attempt **any two** from question number 3,4 and 5

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

- 1)  $\Delta G$  of a reaction is negative then the reaction is \_\_\_\_\_  
 a) At equilibrium                      b) Spontaneous  
 c) Endergonic                              d) Steady
  
- 2) \_\_\_\_\_ inhibitor can bind only to free enzyme not to enzyme substrate complex.  
 a) Competitive                              b) Uncompetitive  
 c) Non-competitive                        d) Mixed
  
- 3) From stoichiometry of oxidation phosphorylation one NADH molecule produces \_\_\_\_\_ ATP.  
 a) 3    b) 2.5  
 c) 2    d) 1.5
  
- 4) \_\_\_\_\_ is an aromatic amino acid.  
 a) Alanine                                      b) Proline  
 c) Arginine                                     d) Tyrosine
  
- 5) \_\_\_\_\_ Molecule acts as the secondary messenger in cell signaling.  
 a) mRNA                                        b) ATP  
 c) cAMP                                         d) GDP
  
- 6) The enzymes enhance reaction rates by lowering \_\_\_\_\_ energies.  
 a) Activation                                 b) Binding  
 c) Gibb's free                                 d) Free
  
- 7) Lipids are stored in body mainly in the form of \_\_\_\_\_  
 a) Phospholipids                              b) Glycolipids  
 c) Triacylglycerides                         d) Fatty acids

<b>Q.2</b>	<b>Long Answer Type question.</b> Explain in detail immobilization of enzymes and add note on applications of it.	<b>14</b>
<b>Q.3</b>	<b>Answer the following</b> A) What is $\beta$ -oxidation of lipid? Explain its reactions. B) Discuss in detail glycogen metabolism.	<b>07</b> <b>07</b>
<b>Q.4</b>	<b>Explain the following.</b> A) Thermodynamic principle of biology. B) Phospholipid biosynthesis. C) microRNA	<b>05</b> <b>05</b> <b>04</b>
<b>Q.5</b>	<b>Explain in short</b> A) Structure and role of monosaccharides B) Biosynthesis of cholesterol.	<b>07</b> <b>07</b>
<b>Q.6</b>	<b>Write short notes (Any Four)</b> 1) Coenzymes 2) Sources of atoms in purines 3) Acidic amino acids 4) B-DNA 5) Biological energy transducers 6) Significance of $K_m$ and $V_{max}$	<b>14</b>



Seat No.	
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**M.Sc. – II (Semester – III) (New) (CBCS) Examination, 2017**

**Zoology**

**Molecular Cytogenetics**

Day & Date: Tuesday, 18-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- Note:** 1) Question **1, 2 & 6** are compulsory.  
2) Attempt **any two** question from **3,4** and **5**

**Q.1 A) Multiple Choice Question (per question 2 marks) 14**

- 1) The linker DNA is associated with \_\_\_\_\_ histone
  - a) H2A
  - b) H2B
  - c) H3
  - d) H1
  
- 2) Restriction enzymes are called \_\_\_\_\_
  - a) Exonuclease
  - b) isomerase
  - c) permease
  - d) endonuclease
  
- 3) Genetically inactive areas of chromosomes are called
  - a) Euchromatin
  - b) Heterochromatin
  - c) Allochromosome
  - d) telomere
  
- 4) The coding sequences in DNA are called \_\_\_\_\_
  - a) exons
  - b) recons
  - c) histones
  - d) introns
  
- 5) Trisomic condition is represented by \_\_\_\_\_
  - a)  $2n+1$
  - b)  $2n-1$
  - c)  $2n-2$
  - d)  $2n+2$
  
- 6) An individual with chromosomes compliment 45, XO is known as \_\_\_\_\_ syndrome
  - a) Turner
  - b) Klinefelter
  - c) Edwards
  - d) Down
  
- 7) Pseudominance is seen during \_\_\_\_\_
  - a) Duplication
  - b) Deletion
  - c) Translocation
  - d) Inversion
  
- 8) \_\_\_\_\_ is virus – mediated bacterial DNA transfer of genetic material
  - a) Transformation
  - b) Conjugation
  - c) Transduction
  - d) Translocation

- 9) \_\_\_\_\_ a technique used in molecular cytogenetics.  
a) Northern blotting                      b) Southern blotting  
c) Western blotting                      d) Karyotyping
- Q.2** Describe how sex is determined in Drosophila. Add a note on Genic balance theory? **14**
- Q.3** **Answer the following**
- A) Describe the technique of human chromosome analysis **07**  
B) Describe how Cell cycle is regulated **07**
- Q.4** **Explain the following.**
- A) Cytogenetic effects of ionizing radiation **05**  
B) Transposable elements **05**  
C) GISH **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**
- 1) Conjugation in bacteria
  - 2) Histones
  - 3) Barr bodies
  - 4) Telomere
  - 5) Kinetochore
  - 6) Cell cycle.

Seat No.	
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**M.Sc. - Zoology(Semester – III) (New) (CBCS) Examination, 2017  
BIOCHEMISTRY**

Day & Date: Thursday, 20-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

**Note: 1) Q 1, 2 & 6 are compulsory.**

**2) Answer any two question from 3,4 and 5**

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

- 1) Cyanide inhibits electron transport at \_\_\_\_\_  
 a) NADH dehydrogenase      b) Succinate dehydrogenase  
 c) Cytochrome C reductase      d) Cytochrome C oxidase
  
- 2) The \_\_\_\_ acts as coenzyme for amino acid metabolism.  
 a) TPP      b) PLP  
 c) NAD<sup>+</sup>      d) Biocytin
  
- 3) The distance between two major groove in B-form DNA is \_\_\_\_\_ nm  
 a) 2.0      b) 3.0  
 c) 4.0      d) 5.0
  
- 4) The catalytic RNAs known as \_\_\_\_\_  
 a) Coenzymes      b) Ribozymes  
 c) Abzymes      d) Apoenzyme
  
- 5) NADPH is produced in \_\_\_\_\_ pathways  
 a) Glycolysis      b) Purine biosynthesis  
 c) Pentose phosphate      d) TCA cycle
  
- 6) The enzyme inhibition in which Km increases and Vmax remains constant is \_\_\_\_\_ inhibition.  
 a) Competitive      b) Uncompetitive  
 c) Non-competitive      d) Mixed type
  
- 7) The storage form of lipid in human is \_\_\_\_\_  
 a) Phospholipid      b) Triacylglycerol  
 c) Cholesterol      d) Sphingolipid

**Q.2 Long Answer Type question. 14**

Describe in detail the IUB classification and nomenclature system of enzymes.

<b>Q.3</b>	<b>Answer the following</b>	
A)	Discuss the $\beta$ -oxidation of palmitic acid and its energetics.	<b>07</b>
B)	Explain in detail glycogen metabolism and its regulation.	<b>07</b>
<b>Q.4</b>	<b>Explain the following.</b>	
A)	Concept of free energy	<b>05</b>
B)	Monosaccharide	<b>05</b>
C)	Application of immobilized enzymes	<b>04</b>
<b>Q.5</b>	<b>Explain in short</b>	
A)	TCA cycle	<b>07</b>
B)	ATP synthase complex and ATP synthesis	<b>07</b>
<b>Q.6</b>	<b>Write short notes on (<i>any four</i>)</b>	<b>14</b>
1)	Primary structure of proteins	
2)	Laws of thermodynamics	
3)	Energetics of glycolysis	
4)	tRNA	
5)	Enzyme activators	
6)	Triacylglycerol biosynthesis	

Seat No.	
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**M.Sc. (Zoology) (Semester – IV) (Old) (CGPA) Examination, 2017  
APPLIED ZOOLOGY**

Day & Date: Friday, 21-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B. :** 1) Q.1,2 and 6 are **compulsory**.  
 2) Attempt **any two** questions from Q. 3, 4 and 5.  
 3) Answers to the **Sections I, II and III** are to be written in the same answer book.  
 4) Figures to the **right** indicate **full** marks.  
 5) Draw neat and labeled **diagram** wherever **necessary**.

**Section I**

**Q.1 Choose correct alternatives:** **14**

- 1) \_\_\_\_\_ is a procedure used to obtain a small sample of amniotic fluid that surrounds the fetus.
 

a) Amniocentesis	b) Biosynthesis
c) Cryopreservation	d) Embryo transfer
  
- 2) In Bio bioweapon \_\_\_\_\_ is used.
 

a) Mycobacterium	b) E. Coli
c) Staphylococcus	d) Bacillus anthreus
  
- 3) \_\_\_\_\_ is nutrient rich, natural fertilizer and soil conditioner.
 

a) Urea	b) Indol acetic acid
c) Vermicompost	d) All above
  
- 4) An open neural tube defect \_\_\_\_\_ which can be detected by amniocentesis.
 

a) Down's syndrome	b) Turner syndrome
c) Spina difida	d) All above
  
- 5) The fertilization of egg by sperm had occurred not in uterus but outside the uterus at artificially maintained optimum condition is known as \_\_\_\_\_.
 

a) uterine fertilization	b) In vitro fertilization
c) Acute fertilization	d) a and c
  
- 6) The parasite that is responsible for malaria disease is \_\_\_\_\_.
 

a) Mosquito	b) Plasmodium vivax
c) Tania saginata	d) Entamoeba histolytica

- 7) The intrauterine devices are used to prevent \_\_\_\_\_
- a) the sperm to reach egg
  - b) the sperm to reach female
  - c) the sperm from leaving
  - d) all above

### Section II

- Q.2** What is Amniocentesis? Describe in details merits and demerits of amniocentesis. **14**
- Q.3 Explain in short:**
- A) Give an account on Contraceptives **07**
  - B) Describe procedure of ELISA **07**
- Q.4 Explain in short:**
- A) Earthworm as a protein source **05**
  - B) Write an essay on 'Biological Warfare'. **05**
  - C) Immunoglobulins **04**
- Q.5 A)** Describe the role of Vaccines against communicable and infectious diseases. **07**
- B)** Give an account on IVF. **07**

### Section III

- Q.6 Write short notes on any four of the following:** **14**
- 1) Reproductive tract infections
  - 2) T lymphocytes
  - 3) Biological warfare
  - 4) Cryopreservation of gametes
  - 5) Innate immunity
  - 6) Cell mediated immunity



	2) Describe fresh water ecosystem.	<b>07</b>
<b>Q.4</b>	1) Explain in brief Conservation of natural resources.	<b>05</b>
	2) Biological indication of pollution.	<b>05</b>
	3) Describe the effects of noise pollution.	<b>04</b>
<b>Q.5</b>	1) Explain Rain water harvesting system.	<b>07</b>
	2) Describe management of green house	<b>07</b>
<b>Q.6</b>	<b>Short Notes (Any Four)</b>	
	1) Carbon credits	<b>14</b>
	2) Soil toxic agents	
	3) Induced pisciculture	
	4) Carbon cycle	
	5) Grassland ecosystem	
	6) Food colors and preservatives	



Seat No.	
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**M.Sc. Zoology (Semester – IV) (Old) (CGPA) Examination, 2017  
Zoo Keeping and Animal House Management**

Day & Date: Wednesday, 26-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B.:** 1) Question number 1, 2 and 6 are compulsory.  
2) Attempt **any two** from questions number 3, 4 and 5.

**Q.1 A) MCQ (Per question 2 marks) (Compulsory):** **14**

1) Identification of missing zoo tiger in wild can be done with \_\_\_\_\_

- a) Pug marks
- b) Dentition
- c) Band pattern and a photograph
- d) Fingerprints

2) In India crocodile breeding centre is located in \_\_\_\_\_

- a) Kolkata
- b) Chennai
- c) Chilica Lake
- d) Tiruvananthapuram

3) Rodenticides means \_\_\_\_\_

- a) That kill fishes
- b) That kill insects
- c) That kill rats
- d) None of these

4) Taxidermy is a technique of \_\_\_\_\_

- a) Skinning the wild animal
- b) Skinning and stuffing the wild animal
- c) Preparing wild animal duplicates
- d) Arranging bones of wild animals in order

5) Rabies is a zoonotic \_\_\_\_\_ disease which infects domestic and wild animals.

- a) Viral
- b) Bacterial
- c) Hematic
- d) Helminth

6) Ethogram is a \_\_\_\_\_

- a) Pictorial catalogs of the behavioural patterns of an organism or a species.
- b) Graphical representation of behavior
- c) Statistical representation of behavior
- d) All of above

7) Imprinting mechanism is found in \_\_\_\_\_

- a) Snakes
- b) Mammals
- c) Tortoise
- d) Ducks and Geese

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

What are the visitor rules, regulations and surveillance in a zoo? Give an account on first aid to the zoo animals and visitors?

- Q.3 Answer the following.**
- A)** What is taxidermy? Give its importance. How taxidermist prepares head, skin. and fish mounts? **07**
- B)** What are common avian diseases? How they are transmitted to domestic animals?
- Q.4 Answer the following.**
- A)** Give an account on Management of green eater birds. **07**
- B)** How to manage snakes in the zoo. **07**
- Q.5 Explain in short:**
- A)** Explain Housing feeding behavior in crocodile. **05**
- B)** Veterinary services in zoo. **05**
- C)** Animal behavior in captivity. **04**
- Q.6 Write short notes on (any four) (Compulsory) **14****
- 1) Accidents Firefighting in national Parks.
  - 2) Rodent management and disinfection procedure
  - 3) Bird feeds
  - 4) Zoo design
  - 5) Public awareness programmes in a zoo
  - 6) Zoo Tourism

Seat No.	
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**Zoology (Semester – IV) (New) (CBCS) Examination, 2017**  
**ANIMAL BIOTECHNOLOGY**

Day & Date: Wednesday, 19-04-2017

Max. Marks: 70

Time: 2:30 PM to 05.00 PM

***N.B.:*** 1) Q.1 & Q.2 and Q.6 are compulsory.  
2) Attempt any two from Q.3, 4 and 5.

- Q.1**      **Tick the correct alternative.(Per question 2 marks)**      **14**
- 1) \_\_\_\_\_ contamination in cell culture is difficult to control.
 

a) Fungal	b) Bacterial
c) Mycoplasmal	d) All of the above
  
  - 2) Platelets are the cell fragments, lacking a nucleus, that breaks off from a \_\_\_\_\_.
 

a) Macrophage	b) Megakaryocyte
c) Erythrocytes	d) Monocyte
  
  - 3) The lac operon encodes three enzymes required for the metabolism of \_\_\_\_\_.
 

a) Glucose	b) Maltose
c) Fructose	d) Lactose
  
  - 4) cDNA can be formed from RNA by enzyme \_\_\_\_\_.
 

a) transcriptase	b) reverse transcriptase
c) fructose	d) lactose
  
  - 5) DNA only transposones possess genes which encodes \_\_\_\_\_.
 

a) Transposeose	b) Reverse transcriptase
c) Transcriptase	d) All the above
  
  - 6) \_\_\_\_\_ is a method used in molecular biology for detection of specific DNA sequence in DNA samples.
 

a) Northern blotting	b) Southern blotting
c) Western blotting	d) All the above
  
  - 7) Transposons also called as \_\_\_\_\_.
 

a) Jumping genes	b) Transposable elements
c) Mobile genetic elements	d) All the above
- Q.2** Describe in detail primary cultures and add a note on cell clones.      **14**
- Q.3 A)** Explain the principle and technique of nucleic acid hybridization.      **07**

	<b>B)</b>	Explain the principle and working of PCR.	<b>07</b>
<b>Q.4</b>	<b>A)</b>	Explain western blotting technique.	<b>05</b>
	<b>B)</b>	Explain Operon concept.	<b>05</b>
	<b>C)</b>	What is RNA processing?	<b>04</b>
<b>Q.5</b>	<b>A)</b>	Give in detail mechanism of transposition.	<b>07</b>
	<b>B)</b>	Explain the regulation of gene expression in eukaryotes.	<b>07</b>
<b>Q.6</b>	<b>Write note on (any four)</b>		<b>14</b>
	1)	Ethical issues in human cloning and biotechnology.	
	2)	Application of genetic engineering in agriculture.	
	3)	Somatic hybridization	
	4)	FISH	
	5)	Cybrids	
	6)	Heterochromatinization	

Seat No.	
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**M.Sc.(Zoology) (Semester – IV) (New) (CBCS) Examination, 2017  
APPLIED ZOOLOGY**

Day &amp; Date: Friday, 21-04-2017

Max. Marks: 70

Time: 2:30 PM to 05.00 PM

**N.B. :** 1) Q. No. (1), (2) and (6) are compulsory.  
2) Attempt **any two** from Q. No. (3), (4) and (5)

**Q.1 MCQ (Per question 2 marks) (Compulsory):** **14**

- 1) Which of these will have a poor chance of success with IVF?
  - a) Tall women
  - b) Short women
  - c) Older women
  - d) Angry women
  
- 2) \_\_\_\_\_ is used as bioweapon.
  - a) Bacillus anthracis
  - b) E-Coli
  - c) Staphylocococcus
  - d) Mycobacterium
  
- 3) Antibodies are produced by \_\_\_\_\_.
  - a) B lymphocytes
  - b) Blood cells
  - c) Complement
  - d) Antigen
  
- 4) 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
  
- 5) \_\_\_\_\_ is a strong antibody.
  - a) IgA
  - b) IgG
  - c) IgO
  - d) IgE
  
- 6) \_\_\_\_\_ is the first mammalian clone, created from fully differentiated non-reproductive cell of an adult sheep.
  - a) Dolly
  - b) Chimeric mouse
  - c) Knockout mouse
  - d) All above
  
- 7) An open neural tube defect \_\_\_\_\_ which can be detected by amniocentesis.
  - a) Down's syndrome
  - b) Turner syndrome
  - c) All above
  - d) Spina bifida

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

What is amniocentesis? Add a note its procedure and merits and demerits of amniocentesis.

**Q.3 Answer the following:**

- a) Describe monoclonal antibody production and characterization. **07**
- b) Give an account on Semen analysis **07**

- Q.4 Explain the following:**
- a) What is contraception? What are the methods of contraception? **05**
  - b) Give an account on vermitechnology. **05**
  - c) Give an account on Surrogate pregnancy. **04**
- Q.5 Explain in short:**
- a) Give an account on fertility control. **07**
  - b) Describe in detail important human and veterinary parasites. **07**
- Q.6 Write short notes (any four) (Compulsory):** **14**
- 1) Blood cell Routine tests for hepatitis
  - 2) Vermiwash
  - 3) Biological warfare
  - 4) T lymphocytes
  - 5) Innate Immunity
  - 6) Importance of IVF

Seat No.	
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**M.Sc. (Zoology) (Semester-IV) (New) (CBCS) Examination, 2017  
ENVIRONMENTAL BIOLOGY & TOXICOLOGY**

Day & Date: Monday, 24-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

**Instructions :** 1) **Q.1, 2 & 6 are compulsory.**  
2) Answer any two questions from Q.3, 4, 5.

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

- 1) .....is the study of toxins in the restricted sense i.e. poisons produced by Micro-organisms, viz., bacteria and viruses.
  - a) Toxinology
  - b) Biochemical toxicology
  - c) Industrial Toxicology
  - d) System Toxicology
  
- 2) Radioactive substances that emit  $\alpha$  and  $\beta$  particles are referred to as ".....".
  - a) External emitters
  - b) Internal emitters
  - c) Intraemitters
  - d) Intermediate emitters
  
- 3) Which is the narcotis.....
  - a) Opium
  - b) Hemp
  - c) Alcohol
  - d) Strychin
  
- 4) .....is in the form of short wave length high energy radiation similar to x-rays.
  - a) Electromagnetic Radiation
  - b) Corpuscular radiation
  - c) Non-ionizing radiation
  - d) Anthropogenic radiation
  
- 5) ..... is environmental carcinogens.
  - a) Methyl chloride
  - b) Phenyl in
  - c) Car bromide
  - d) Lithium
  
- 6) DDT permissible limit in freshwater is.....
  - a)  $0.004 \frac{\mu g}{L}$
  - b)  $0.003 \frac{\mu g}{L}$
  - c)  $0.002 \frac{\mu g}{L}$
  - d)  $0.001 \frac{\mu g}{L}$
  
- 7) ..... Poisons destroy all tissues with which they come in contact by chemical actions.

- a) Corrosives
- b) Irritants
- c) Neurotics
- d) Cardiac

- Q2**      **Long answer type question:**      **14**  
Define toxicology and illustrate its various branches.
- Q3**      **Answer the following:**      **14**  
a) Soil pollution  
b) Mechanism of action of ionizing radiation
- Q4**      **Explain the following**      **14**  
a) Minimart disease  
b) Nitrogen cycle  
c) Management of poly house
- Q5**      **Explain in short:**      **14**  
a) Define organophosphate and give its example  
b) Illustrate the mechanism of action of teratogens
- Q6**      **Write short notes on any four of the following:**      **14**  
1) Food contaminant  
2) Rain water harvesting  
3) Conservation of natural resources  
4) Litter and plastic management  
5) Kinds of aquatic ecosystem  
6) Toxic effects



Seat No.	
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**M.Sc. Zoology (Semester – IV) (New) (CBCS) Examination, 2017**  
**Zoo Keeping and Animal House Management**

Day & Date: Wednesday, 26-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B.:** 1) Question number 1, 2 and 6 are compulsory.  
 2) Attempt **any two** from questions number 3, 4 and 5.

**Q.1 A) MCQ (Per question 2 marks) (Compulsory):** **14**

1) Identification of missing zoo tiger in wild can be done with \_\_\_\_\_

- a) Pug marks
- b) Dentition
- c) Band pattern and a photograph
- d) Fingerprints

2) In India crocodile breeding centre is located in \_\_\_\_\_

- a) Kolkata
- b) Chennai
- c) Chilica Lake
- d) Tiruvananthapuram

3) Rodenticides means \_\_\_\_\_

- a) That kill fishes
- b) That kill insects
- c) That kill rats
- d) None of these

4) Taxidermy is a technique of \_\_\_\_\_

- a) Skinning the wild animal
- b) Skinning and stuffing the wild animal
- c) Preparing wild animal duplicates
- d) Arranging bones of wild animals in order

5) Rabies is a zoonotic \_\_\_\_\_ disease which infects domestic and wild animals.

- a) Viral
- b) Bacterial
- c) Hematic
- d) Helminth

6) Ethogram is a \_\_\_\_\_

- a) Pictorial catalogs of the behavioural patterns of an organism or a species.
- b) Graphical representation of behavior
- c) Statistical representation of behavior
- d) All of above

7) Imprinting mechanism is found in \_\_\_\_\_

- a) Snakes
- b) Mammals
- c) Tortoise
- d) Ducks and Geese

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

What are the visitor rules, regulations and surveillance in a zoo? Give an account on first aid to the zoo animals and visitors?

- Q.3 Answer the following.**
- A)** What is taxidermy? Give its importance. How taxidermist prepares head, skin. and fish mounts? **07**
- B)** What are common avian diseases? How they are transmitted to domestic animals?
- Q.4 Answer the following.**
- A)** Give an account on Management of green eater birds. **07**
- B)** How to manage snakes in the zoo. **07**
- Q.5 Explain in short:**
- A)** Explain Housing feeding behavior in crocodile. **05**
- B)** Veterinary services in zoo. **05**
- C)** Animal behavior in captivity. **04**
- Q.6 Write short notes on (any four) (Compulsory) **14****
- 1) Accidents Firefighting in national Parks.
  - 2) Rodent management and disinfection procedure
  - 3) Bird feeds
  - 4) Zoo design
  - 5) Public awareness programmes in a zoo
  - 6) Zoo Tourism