Total Pages : 8

J-6541

M.Sc. (Semester-IV) Examination, 2023

ZOOLOGY

(Animal Behaviour)

Time Allowed : Three Hours

Maximum Marks : 70

Note : Question paper is divided into four sections. Attempt questions of all four sections as per direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **all** questions. Each question carries **1** mark.

[10×1=10]

1. (i) Animals communicate through the use of :

(a) Visual signals

(b) Acoustic signals

(c) Chemical signals

(d) All of these

(ii) Which of the following signals is durable but inflexible?

(a) Chemical

(b) Visual

(c) Tactic

(d) Acoustic

(iii) The building of a web by spider is an example of :

(a) Fixed action pattern

(b) Releaser

(c) Imprinting

(d) Learned behaviour

(iv) Chemical signals passed between members of same species are called _____.

(v) Which of the following best describes a social behaviour?

(a) A predator chasing prey

(b) An animal hibernating

(c) One monkey grooming another

(d) An animal defending its territory

(vi) Male blister beetles drumming female abdomen is which type of communication?

(a) Visual

(b) Tactile

(c) Auditory

(d) Olfactory

(vii) Communication on :

(a) Accomplished only by mammals

(b) Innate and learned

(c) Learned only

(d) Innate only

(viii) Castes of honey bee developing from fertilized eggs are :

(a) Males and queen

(b) Males and workers

(c) Queen and workers

(d) All of the above

(ix) The decrease in response to repeated or continuous stimulation is called :

(a) Instinct

(b) Maturation

(c) Habitation

(d) Insight

(x) The interaction in which an individual gives up or sacrifices some of its own reproductive potential to benefit another individual is called :

(a) Agnostic

(b) Territory

(c) Hierarchy

(d) Altruism

SECTION-B

(Very Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries 2 marks. (Word limit : 25-30 words) [5×2=10]

2. (i) IRM

(ii) Reflex action

(iii) Homeostasis

(iv) Conditioning

(v) Orientation

(vi) Klinotaxis

(vii) Swarming

(vii) Infanticide

SECTION-C

(Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **4** marks.(Word limit : 250 words) [5×4=20]

3. (i) Models of motivation

(ii) Altruism

(iii) Dorsal-light reaction

(iv) Thermoregulation

(v) Intersexual selection

(vi) Non verbal communication

(vii) Kin selection

SECTION-D

(Essay Type Questions)

Note: Attempt **any three** questions. Each question carries **10** marks. (more than : 500 words) [3×10=30]

4. (i) What is Taxis? Describe the different kinds of taxis with suitable examples.

(ii) What is FAP? Describe its characteristics and mechanism.

(iii) What is Eusociality? Explain social organisation in honey bee.

(iv) Explain cost benefit analysis of parental care with suitable case studies.

(v) Explain the role of hormones and pheromones affecting the behaviour of animals.

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Total Pages : 8

J-6542

M.Sc. (Semester-IV) Examination, 2023

ZOOLOGY

(Biology of Parasitism)

Time Allowed : Three Hours

Maximum Marks : 70

Note : Question paper is divided into four sections. Attempt questions of all four sections as per direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note: Attempt **all** questions. Each question carries **1** mark. [1x10=10]

1. (i) Rhabditiform larva hatches out in :

(a) 24 to 28 hrs.

(b) 36 to 48 hrs.

(c) 48 to 60hrs.

(d) 3rd day

(ii) Ancylostoma live in intestine of man and feed upon :

(a) Digestive juice

(b) Blood

(c) Food

(d) All of the above

(iii) Pinworm is a common name of :

(a) Ancylostoma

(b) Enterobius

(c) Trichuris

(d) Trichinella

(iv) Ascaris exhibits :

(a) Polymorphism

(b) Ansoganny

(c) Regeneration

(d) Sexual dimorphism

(v) Quartan malaria of man is caused by :

(a) Plasmodium vivax

(b) Plasmodium ovale

(c) Plasmodium falciparum

(d) Plasmodium malariae

(vi) Which is the first stage of larva of Fascida ?

(a) Miracidium

(b) Sporocyst

(c) Redia

(d) Cercaria

(vii) In Fasciola the region where the shell gland opens into is the :

(a) Oviduct

(b) Ovovitulline duct

(c) Uterus

(d) Oocyte

(viii) Plasmodium belongs to class Sporozoa which is characterized by :

(a) Pseudopodia

(b) Myonemes

(c) No distinct locomotory organelles

(d) Flagella

(ix) The infective stage of trypanosoma is :

(a) Long and slender form

(b) Crithidial form

(c) Metacyclic form

(d) Intermediate form

(x) Osmoregulatory mechanism absent in :

(a) Paramecium

(b) Amoeba

(c) Euglena

(d) Trypanosoma

SECTION-B

(Very Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **02** marks. (Maximum word limit 25-30 words). [5x2=10]

2. (i) Trophozoite

(ii) Sporozoite

(iii) Amastigote form

(iv) Sand fly

(v) Trypanosomiasis

(vi) Rhabditiform larva

(vii) Ookinete

(viii) Ascariasis

SECTION-C

(Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **04** marks. (Maximum word limit : 250 words) [5x4=20]

3. (i) Sporocyst larva

(ii) Parasitizc adaptations in Fasciola

(iii) Distinguish between the schizont and cryptoshizont stages of plasmodium.

(iv) Tuberculosis

(v) Gastrointestinal helminths

(vi) Enterobius vermicularis

(vii) Rickettsiae

(viii) Plant parasite nematodes

SECTION-D

(Essay Type Questions)

Note : Attempt **any three** questions. Each question carries **10** marks. (Maximum word limit : 500 words) [3x10=30]

4. (i) Describe the structure and life history of Ancylostoma duodenale.

(ii) What is sleeping sickness? How it is caused? Describe its transmission and pathogenesis suggest methods for its control.

(iii) Give an illustrated account of the life cycle of plasmodium vivax.

(iv) What disease is caused by Ascaris? Give an illustrated account of the life history of Ascaris.

(v) What is digenetic life cycle? Explain it with reference to the life history of Fasciola hepatica.

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Total Pages : 8

J-6543

M.Sc. (Semester-IV) Examination, 2023

ZOOLOGY

(Comparative Endocrine Physiology)

Time Allowed : Three Hours

Maximum Marks : 70

Note : Question paper is divided into four sections. Attempt questions of all four sections as per direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **any ten** questions. Each question carries **1** marks. [10x1=10]

1. **Fill in the blanks :**

(i) Hormones are produced by _____ that make up the _____ system.

(ii) Chemical messengers secreted by ductless glands are called _____.

(iii) _____ hormone is reduced to retain water when the body is dehydrated?

(iv) _____ hormone increases the glucose level in the blood.

(v) The condition goitre is associated with _____ hormone.

Multiple Choice Questions :

(vi) Which of these hormones is made by the posterior pituitary?

(a) FSH

(b) LH

(c) ACTH

(d) ADH

(vii) Which of this statement is incorrect regarding the function of hormones?

(a) Reproduction and sexual differentiation

(b) Maintenance of internal environment

(c) Maintain body temperature

(d) Development and growth

(viii) 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)

(ix) Calcium level in the blood is regulated by the :

(a) Thyroid

(b) Parathyroid

(c) Posterior pituitary

(d) Both (a) and (b)

(x) Calcitonin is a hormone of which of the following:

(a) Adrenal cortex

(b) Thyroid gland

(c) Pituitary gland

(d) Thymus gland

(xi) Most hormone of the endocrine system are regulated by a :

(a) Negative feedback mechanism

(b) Positive feedback mechanism

(c) Hormone receptor complex

(d) Hormone gene complex

(xii) The Glucagon is :

(a) Accelerates the conversion of glycogen into glucose

(b) Slows down glucose formation from lactic acid

(c) Decreases the conversion of glycogen into glucose

(d) Speeds up protein synthesis within cells

SECTION-B

(Very Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **2** marks.(Word limit 25 -30 words) : [5x2=10]

2. Define the following terms :

(i) Endocrine gland

(ii) Gluconeogenesis

(iii) Cretinism

(iv) Master gland

(v) Renin-angiotensin system

(vi) Endocrinology

(vii) Hyperglycaemia

SECTION-C

(Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **4** marks (Word limit 250 words) : [5x4=20]

3. Write short notes on the following :

(i) Classes of hormones

(ii) Phylogeny of endocrine system

(iii) Parathyroid gland

(iv) Physiological function of adrenal medullary hormones

(v) Endocrine system

(vi) Hormonal control of feeding behaviour

(vii) Glucose homeostasis

SECTION-D

(Long Type Questions)

Note : Attempt any three questions. Each question carries 10 marks. (Word limit 500 words) : [3x10=30]

4. (i) Comment on role of glucocorticoid in gluconeogenesis Add a note on structural diversity of glucocorticoids among vertebrates. [5+5=10]

(ii) Briefly discuss the importance of adrenocertical and adrenomedullary interaction. Comment on evolution of discrete adrenal gland. [5+5=10]

(iii) Briefly discuss the biosynthesis of parathyroid hormone. Explain briefly about hormonal regulation of phosphate homeostasis.[5+5=10]

(iv) Explain hormonal control of water and electrolyte balance add a note on catecholamine biosynthesis. [5+5=10]

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J-6545

M.Sc. (Semester-IV) Examination, 2023

ZOOLOGY

(Genomics, Metagenomics and Epigenetics-Genomics)

Time Allowed : Three Hours

Maximum Marks : 70

Note : Question paper is divided into four sections. Attempt questions of all four sections as per direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **all** questions. Each question carries **1** mark.

[10×1=10]

1. (i) Nucleosome is made up of :

(a) DNA, Histone, Core-Protein

(b) DNA, Histone, Core-Protein, Linker H1

(c) RNA, Histone, Core-Protein

(d) RNA, Histone, Core-Protein, Linker H1

(ii) Association of DNA and histone is mediated by :

(a) Covalent bonding

(b) Hydrogen bonding

(c) Hydrophobic bonding

(d) Vander Waals interactions

(iii) Most sequences in the human genome belong to:

(a) Genes

(b) Pseudogenes

(c) Genes fragments

(d) Tandem repeats

(iv) International Human Genome Project was initiated by :

(a) National Institute of Health

(b) Celera genomics

(c) US Department of Energy (DOE)

(d) NOH and US DOE

(v) The term 'Genomics' was coined by :

(a) Thomas Cech

(b) Thomas Roderick

(c) T.H. Morgan

(d) Craig Venter

(vi) Physical maps are maps of locations of identifiable landmarks on a genomic DNA ____ inheritance patterns.

(a) remotely related to

(b) related to

(c) regardless of

(d) associated with

(vii) Physical maps are constructed by using a chromosome walking technique.

(a) True

(b) False

(viii) What is the deposition of cDNA into the inert structure called ?

(a) DNA Probes

(b) DNA Polymerase

(c) DNA microarrays

(d) DNA fingerprinting

(ix) The term 'Bioinformatics' was coined by :

(a) J.D. Watson

(b) Paulien Hogeweg

(c) Margaret Dayhoff

(d) Frederic Sanger

(x) The study of all the proteins encoded by the genome of an organism is called :

(a) Proteome

(b) Proteomics

(c) Translation studies

(d) Genomics

SECTION-B

(Very Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **2** marks.(Word limit : 25-30 words) [5×2=10]

2. (i) SINE

(ii) Bioinformatics

(iii) Bacterial genome

(iv) Physical map

(v) Pseudogenes

(vi) Mutagenesis

(vii) FISH

SECTION-C

(Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **4** marks.(Word limit: 250 words) [5×4=20]

3 Write short notes on the following :

(i) **Bacterial genomes**

(ii) Transposable elements

(iii) Gene maps

(iv) Random mutagenesis

(v) Protein-Protein interaction

(vi) Non coding regions of genes

(vii) DNA micro-array profiling

SECTION-D

(Essay Type Questions)

Note: Attempt **any three** questions. Each question carries **10** marks.(more than 500 words) [3×10=30]

4. (i) Describe the organization and structure of genomes.

(ii) **Explain the organization and nature of nuclear** DNA in eukaryotes.

(iii) Write an essay on Human Genome Project.

(iv) Describe the large scale mutagenesis.

(v) Describe the architecture of mitochondrial genome.

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