Total number of printed pages–12

1 (Sem–4/FYUGP) ZLG 44/45/46 MJ

2026

ZOOLOGY

(Major)

Answer the Questions from any one Option.

OPTION–I

Paper : ZLG4400404MJ

(Comparative Anatomy of Vertebrates)

OPTION–II

Paper : ZLG4400504MJ

(Animal Behaviour and Chronobiology)

OPTION–III

Paper : ZLG4400604MJ

(Parasitology)

Full Marks : 45

Time : 2 hours

The figures in the margin indicate full marks for the questions.

OPTION–I

Paper : ZLG4400404MJ

(Comparative Anatomy of Vertebrates)

1. Multiple choice questions :
*(**All** are **compulsory**)* 1×5=5

(a) Sebaseous gland is an epidermal derivatives of —

(i) Soft epidermis

(ii) Hard epidermis

(iii) Both (i) and (ii)

(iv) None of the above

(b) Which of the following is not a part of the axial skeleton ?

(i) Skull

(ii) Vertebral column

(iii) Rib cage

(iv) Pelvic girdle

(c) Dental formula of man is 2/2, 1/1, 2/2, 3/3 = 32. What is the dental formula of an elephant :

(i) 1/0, 0/0, 0/0, 3/3 = 14

(ii) 0/0, 1/1, 0/0, 3/3 = 16

(iii) 1/1, 0/0, 0/0, 3/3 = 16

(iv) None of the above

(d) Which *one* of the following represents the true stomach in ruminants ?

(i) Rumen

(ii) Reticulum

(iii) Omasum

(iv) Abomasum

(e) Hepatic portal system is associated with—

(i) Lung

(ii) Liver

(iii) Stomach

(iv) None of the above

2. Write short notes on the following : 2×5=10
(any five)

(a) Hoofs

(b) Sternum of birds

(c) Thecodont teeth

(d) Brunner's glands

(e) Solenocytes

(f) Nephrostome

(g) Glossopharyngeal nerve

(h) Cornea

(i) Cochlea

(j) Neuromast organ

3. Answer briefly : ***(any four)*** 5×4=20

(a) What is exoskeleton? Write a note on digital cornifications.

(b) Write a note on cervical vertebrates of mammals.

(c) Write a brief note on liver of an amphibian.

(d) Describe briefly the structure of a true gill.

(e) Write a note on larynx of bird.

(f) Give a brief comparative account of heart of birds and mammals.

(g) Discuss briefly about the aortic arches in reptiles.

(h) Write a note on nephridial apparatus of Amphioxus.

(i) Describe organ of Corti with diagram.

(j) Describe the characteristics of respiratory organs.

4. Answer elaborately : ***(any one)*** 10×1=10

(a) Describe the structure and modifications of vertebral column in vertebrates.

(b) Give an account on succession of kidneys in vertebrates.

(c) Give a comparative account of brain in vertebrates.

(d) Give a comparative account of structure and functions of stomach in vertebrates.

OPTION–II

Paper : ZLG4400504MJ

(Animal Behaviour and Chronobiology)

1. Choose the correct answers : 1×5=5

   (a) _____ is a male sex hormone.

   (i) Aldosterone

   (ii) Estrogen

   (iii) Testosterone

   (iv) Melatonin

   (b) The scientific and objective study of Animal Behaviour is known as

   (i) Ecology

   (ii) Ethology

   (iii) Physiology

   (iv) Ichthyology

   (c) Honey bee uses _____ to convey wide range of communication.

   (i) Enzymes

   (ii) Spores

   (iii) Pheromones

   (iv) None of the above

   (d) After feeding 'Royal Jelly', the larva of Honey bee develops into

   (i) Worker

   (ii) Queen

   (ii) Drone

   (iv) All of the above

   (e) Termites belong to the order

   (i) Diptera

   (ii) Hymenoptera

   (iii) Blattodea

   (iv) Coleoptera

2. Write short notes on the following : 2×5=10
   (any five)

   (a) Schooling behaviour of fish

   (b) Structure of Honey comb

   (c) Circadian Rhythms

   (d) Conditional Reflex

   (e) Biological oscillation

   (f) Dance language in honey bees

   (g) Navigation

   (h) Social behaviour in ants

   (i) Clock genes

   (j) Sleep-wake cycle

3. Answer briefly : ***(any four)*** 5×4=20

(a) Differentiate between instinct and learned behaviour with example.

(b) Describe the methods of studying behaviour.

(c) Discuss the social behaviour of Monkeys.

(d) Write the functions of biological clock in animal.

(e) Write the importance of zeitgebers in circadian rhythm.

(f) Circalunar *vs* Infradian rhythms.

(g) Importance of Biological time keeping.

(h) Significance of photoperiod.

4. Explain the following : ***(any one)*** 10×1=10

(a) Describe the circadian and circannual rhythms in human. 5+5=10

(b) Discuss the phenomenon of bird migration.

(c) Discuss the Taxis and Kinesis movement in animal with example. 5+5=10

(d) Describe the Eusocial organization in Honey bee.

OPTION–III

Paper : ZLG4400604MJ

(Parasitology)

1. Multiple choice questions : 1×5=5

(i) The vector of *Plasmodium vivax* is :

(a) *Culex* mosquito

(b) *Anopheles* mosquito

(c) *Aedes* mosquito

(d) Sandfly

(ii) *Taenia solium* belongs to :

(a) Nematoda

(b) Trematoda

(c) Cestoda

(d) Protozoa

(iii) The infective stage of *Ascaris lumbricoides* is :

(a) Larva

(b) Egg with larva

(c) Adult

(d) Cyst

(iv) Head louse is scientifically known as :

(a) *Xenopsylla cheopis*

(b) *Pediculus humanus capitis*

(c) *Cimex lectularius*

(d) *Ancylostoma duodenale*

(v) Trypanosomiasis is transmitted by :

(a) Tsetse fly

(b) Sandfly

(c) Tick

(d) Mosquito

2. Very short answer type questions : ***(any five)*** 2×5=10

(i) Define parasitism.

(ii) What is a definitive host? Give one example.

(iii) Write *two* diagnostic features of *Leishmania donovani.*

(iv) Define epidemiology and mention its importance in parasitic diseases.

(v) Name the causative organism of filariasis and mention *one* preventive measure of filariasis.

(vi) What is an endoparasite? Give example.

(vii) Define vector and give *one* example.

(viii) Name the vector of kala-azar and mention *one* symptom.

(ix) What is zoonosis? Give *one* example of a zoonotic parasitic disease.

(x) Mention *any two* control measures of lice infestation.

3. Short answer type questions : ***(any four)*** 5×4=20

(i) Describe the host-parasite relationship with suitable examples.

(ii) Explain the life cycle of *Plasmodium vivax* with a diagram.

(iii) Write a note on the pathogenicity and diagnosis of *Leishmania donovani.*

(iv) Describe the morphology and life cycle of *Taenia solium.*

(v) Discuss the epidemiology and control of *Wuchereria bancrofti.*

(vi) Explain the pathogenic effects of *Ascaris lumbricoides* in humans.

(vii) Write a note on ticks and their medical importance.

(viii) Describe the control measures of *Xenopsylla cheopis.*

4. Long answer type questions : ***(any one)*** 10×1=10

(i) Describe in detail the morphology, life cycle, pathogenicity, diagnosis, and treatment of *Trypanosoma gambiense.*

(ii) Give a detailed account of *Schistosoma haematobium* with reference to epidemiology and control.

(iii) Define and differentiate between parasite, parasitoid and vector with suitable examples.

(iv) Write an essay on parasitic vertebrates with special reference to Candiru and Vampire bat.
