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B.Sc./6th Sem (H)/ZOOLOGY/23(CBCS)

2023

6th Semester Examination

ZOOLOGY (Honours)

Paper : DSE 4-T

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.  
Candidates are required to give their answers  
in their own words as far as practicable.*

[Biology of Insects]

Group - A

Answer any *five* questions :  $2 \times 5 = 10$

1. Write two important external features of insects. 1+1
2. Name one neuro enzyme in insect. 2
3. Mention about two insect pest of paddy with scientific name. 1+1
4. State the importance of antennae in insects. 2
5. What is trophallaxis? Give an example. 1+1
6. What do you mean by phytophagous insect? Give one example.  $1\frac{1}{2} + \frac{1}{2}$

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7. Write one important modification in the hind leg of grasshopper. 2
8. Mention the chemical nature of Chitin. 2

**Group - B**

Answer any *four* questions : 5×4=20

9. Write down the significance of compound eye in insects. 5
10. What is arolium? State its function with a suitable example. 2+3
11. What is photoreceptors? Discuss with suitable example. 2+3
12. Highlight the role of allelochemicals in host plant mediation. 5
13. Briefly describe the role of house flies as vectors. 5
14. Write a note on pericardial sinus. 5

**Group - C**

Answer any *one* question : 10×1=10

15. Write down the neuroendocrine control of metamorphosis in insect. 10
16. Write down the composition of haemolymph. Add a note on the process of blood circulation. 5+5
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[Parasitology]

Group - A

Answer any *five* questions :  $2 \times 5 = 10$

1. What is phoresis? Give example. 1+1
2. Why should *Trypanosoma gambiense* be classified as a salivaria? 2
3. What is Ascaris pneumonitis? 2
4. What is epizootic disease? Give example. 1+1
5. State the causative agents of human scabies and babesiosis. 1+1

P.T.O.

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12. State the principles of ecotourism.
13. What are the causes of human-wildlife conflicts?
14. What are the different challenges in tiger conservation management?

**Group - C**

Answer any *one* question :  $10 \times 1 = 10$

15. Distinguish between sanctuary, national park and biosphere reserve with examples. 10
16. (a) What are the major ecological perturbances?  
(b) Discuss in brief the concept of climax persistence.

5+5



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OR

[Wild Life Conservation and Management]

Group - A

Answer any *five* questions :  $2 \times 5 = 10$

1. What is habitat analysis?
2. State one positive and one negative value of wildlife.
3. What is pug mark?
4. What is grazing logging in management of habitats?
5. What is meant by carrying capacity?
6. What do you mean by the terms Birth rate and sex ratio with reference to wildlife?
7. Name two tiger reserves in India.
8. Write two applications of GIS in wildlife management.

Group - B

Answer any *four* questions :  $5 \times 4 = 20$

9. Mention the importance of wild life conservation.
10. What are the different criteria required for the management of wildlife?
11. Distinguish between in-situ and ex-situ conservation with examples.

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equilibrium exists in a biallelic idealised population. What are the forces that upset the equilibrium?

16. Define adaptive radiation. Discuss the mechanism of adaptive radiation with the example of Australian marsupials or Darwin finches. 3+7

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Shantanu Bhanja

Amor Das



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OR

[Endocrinology]

Answer any *five* questions :  $2 \times 5 = 10$

1. Name the cellular source of calcitonin. What is the main function of calcitonin?
2. Mention the name and the major function of the hormone secreted by the delta cells of pancreas.
3. Name the predominant glucocorticoid hormone of our body. How does it raise blood glucose level?
4. What are the three circulating androgens of mammalian blood and which is predominant among those three?
5. State the functions of vasopressin.
6. What is RIA?
7. What are antithyroid agents? Give an example.
8. Define and exemplify paracrine hormones.

**Group - B**

Answer any *four* questions :  $5 \times 4 = 20$

9. What is the basic difference between type-1 and type-2 diabetes mellitus? What do you mean by the terms (i) hyperglycemia, (ii) polyphagia, (iii) polydipsia, (iv) polyuria, (v) glycosuria and (vi) glucosuria?  $2+3$



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6. Mention four adaptations of the parasitic helminths. 4×½
7. Why the cookiecutter shark can be classified as a parasite? 2
8. What is hyperparasitism? Give example. 1+1

### Group - B

Answer any *four* questions : 5×4=20

9. Comment on the mechanism by which *Xenopsylla cheopis* transmits *Yersinia pestis*. State the incubation period of the bacteria after a flea's bite. 4+1
10. Draw and describe the amastigote stage of *Leishmania donovani*. State the symptoms of Kala-azar? 3+2
11. State the scientific names of two common bed bugs. Mention the symptoms observed in people chronically exposed to bed bugs. Name a drug that can be used to treat infection of hook worm. 2+2+1
12. Mention the vector and causative agent of the Lyme disease. Mention the symptoms associated with Lyme disease. 1+1+3
13. Illustrate the life cycle of *Giardia intestinalis*. Mention a drug that may be used to treat giardiasis. 4+1
14. Name one intermediate host of *Wuchereria bancrofti*. Comment on the pathogenicity of lymphatic filariasis. 1+4



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7. Hypostome acts as an organizer in Hydra — explain. 2
8. Write the role of Hepatocyte Growth Factor in compensatory regeneration. 2

**Group - B**

Answer any *four* questions :  $5 \times 4 = 20$

9. What is extra embryonic membrane? Mention the composition and function of amnion and allantois.  $1+2+2=5$
10. Explain the process of spermateleosis with illustration. 5
11. Define deciduate and nondeciduate placenta. Give example of each. Mention two hormones secreted from placenta.  $2+2+1$
12. Give an account of vitellogenesis in any vertebrate. Mention the germinal layer from which skin, liver and bone are originated.  $3+2$
13. Write briefly the teratogenic effect of the following :  $1+1+1+1+1=5$

- (a) Valproic acid
- (b) Warfarin
- (c) Ethanol
- (d) Retinoic acid
- (e) Lead

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6th Semester Examination  
ZOOLOGY (Honours)

Paper : C 14-T

[Evolutionary Biology]

[CBCS]

Full Marks : 40

Time : Two Hours

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Group - A

Answer any *five* questions :  $2 \times 5 = 10$

1. What is heterozygous superiority?
2. State the principle of parsimony.
3. Define monophyly.
4. What are the unique hominin characters?
5. What is founder effect?
6. What is Handicap Principle?
7. What is Back ground extinction?

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6th Semester Examination

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[Developmental Biology]

[CBCS]

Full Marks : 40

Time : Two Hours

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**Group - A**

Answer any *five* questions :  $2 \times 5 = 10$

1. Define epiboly and emboly.  $1+1=2$
2. Distinguish between primary and secondary spermatocyte.  $1+1=2$
3. What do you mean by primary egg membrane? Give one example.  $1+1=2$
4. What is  $ZP_3$ ? Mention its function.  $1+1=2$
5. Mention the source and function of 'inhibin'.  $1+1=2$
6. Define embryo.  $2$

P.T.O.



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8. A population of 200 individuals is composed of 90TT, 60Tt and 50 tt. Calculate the frequencies of T and t.

**Group - B**

Answer any *four* questions :  $5 \times 4 = 20$

9. Write a short note on Directional selection. What do you mean by molecular clock?  $3+2=5$
10. Describe the effects of migration on Hardy-Weinberg equilibrium. What is micro and macro-evolution?  $3+1+1=5$
11. What is the single origin of human? Why Australopithecus left the tree? Which species considered as the first human?  $2+2+1=5$
12. Compare and contrast between allopatric, parapatric and sympatric modes of speciation. 5
13. Write a note on neo Darwinism. Discuss on pre-zygotic isolating mechanism.  $3+2=5$
14. What supports the RNA world hypothesis? What are the arguments against the RNA world hypothesis?  $3+2=5$

**Group - C**

Answer any *one* question :  $10 \times 1 = 10$

15. State Hardy-Weinberg law. Mention the forces disrupting Hardy-Weinberg equilibrium. Prove that Hardy-Weinberg



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14. Write briefly the developmental process of brain in vertebrate with suitable diagram. 5

**Group - C**

Answer any *one* question : 10×1=10

15. Describe Spemann-Mangold's experiment in support of dorsal lip of blastopore as the primary organizer in amphibian development. Define secondary and tertiary organizer with suitable example. 6+4=10
16. Briefly describe the process — how apical ectodermal cap and regeneration blastema is formed after amputation of a salamander limb? 5+5=10
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( 5 )

10. Give an illustrated account of hypothalamo-hypophyseal portal system? State its functional significance. 4+1

~~11.~~ Describe the ultrastructure of thyroid gland. 5

~~12.~~ How does melatonin maintain the sleep-wake cycle of our body? What is 'love hormone'? 4+1

~~13.~~ Write a note on hormonal control of parturition. 5

~~14.~~ Describe the mechanism of non-steroidal hormone, that use cAMP as a second messenger. 5

*water soluble*

### Group - C

Answer any *one* question : 10×1=10

15. Describe the ultrastructure of pineal gland. What is pituicyte? Comment on the feedback regulation of pituitary gonadotropin secretion. 6+1+3

~~16.~~ Distinguish between estrous cycle and menstrual cycle. Define and exemplify monoestrous, diestrous and polyestrous animals. Give an account of hormonal control of estrous cycle. 3+2+5

*Shantana*  
*Shantana*

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**Group - C**

Answer any **one** question :

10×1=10

15. Illustrate the life cycle of *Schistosoma haematobium* (diagrammatic representation). Mention the different phases of schistosomiasis with associated symptoms. Comment on the treatment and control measures against schistosomiasis. 4+3+(1+2)

16. Illustrate the life cycle of *Trichinella spiralis* (diagrammatic representation). Comment on the pathogenicity of the worm and mention the name of two drugs that can be administered to treat trichinosis. 4+4+2

Overall, advancing the succession  
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of degraded ecosystem,  
enhancing biodiversity and  
contribute of the  
conservation of the  
use of natural resource.  
P.T.O.