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1 (Sem-4) ZLG 4

2025

ZOOLOGY

Paper : ZLG0400404

(Animal Behaviour and Chronobiology)

Full Marks : 45

Time : 2 hours

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

1. Choose the correct answers : $1 \times 5 = 5$

A. Who is known as the "Father of Ethology" ?

(a) Ivan Pavlov

(b) Konrad Lorenz

(c) Nikolass Tinbergen

(d) Karl Von Frisch

B. What is the purpose of the "waggle dance" in honeybees?

(a) To attract a mate

(b) To communicate the location of food

(c) To establish dominance in the hive

(d) To signal danger

C. What is the term for external cues that regulate biological rhythms?

(a) Zeitgebers

(b) Chronometers

(c) Photometers

(d) Circadian markers

D. Termites have a caste system consisting of which *three* main groups?

(a) Soldiers, Queens, Hunters

(b) Queens, Workers, Soldiers

(c) Workers, Drones, Kings

(d) Soldiers, Kings, Foragers

E. Which hormone is responsible for regulating the sleep-wake cycle?

(a) Cortisol

(b) Insulin

✓ (c) Melatonin

(d) Adrenaline

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

✓ (A) Biological rhythms

✓ (B) Taxis and Kinesis

✓ (C) Proximate causes of behaviour

✓ (D) Instinct behaviour *Innate*

(E) Biological oscillations

✓ (F) Environmental zeitgebers

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

✓ A. Name *any two* scientists who contributed to the study of animal behaviour and mention their key discoveries.

✓ B. Write about dance language of honey bee as means of animal communication.

C.

How does photoperiod influence seasonal reproduction in vertebrates? Provide an example.

D. Write about animal navigation with suitable examples.

E. What is the importance of the subject of chronobiology? Write a note on the historical development of the subject.

4. Answer elaborately : **(any one)** 10

A. Compare and contrast the eusocial organization of honeybees, termites, and ants. Which system do you think is the most efficient, and why?

B. Explain the different methods of studying animal behaviour.

C. Describe the role of melatonin in the sleep-wake cycle of mammals.