

- 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.

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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 : 1×5=5

- A. Who is known as the "Father of Ethology" ?
- (a) Ivan Pavlov
- (b) Konrad Lorenz
- (c) Nikolass Tinbergen
- (d) Karl Von Frisch

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Contd.

- 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

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

- (a) Cortisol
- (b) Insulin
- (c) Melatonin
- (d) Adrenaline

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
- (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.

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Contd.