2026

ZOOLOGY

(Major)

Paper : ZLG4200304MJ

(Animal Behaviour and Chronobiology)

Full Marks : 45

Time : Two hours

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

1. Choose the correct answer : 1×5=5

(i) Who is known for the 'waggle dance' discovery in honeybees?

(a) Ivan Pavlov

(b) Karl von Frisch

(c) Konrad Lorenz

(d) Niko Tinbergen

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(ii) Learned behaviour is :

(a) Genetically fixed

(b) Present at birth

(c) Acquired through experience

(d) Independent of environment

(iii) Movement of an organism away from light is called :

(a) Positive taxis

(b) Negative taxis

(c) Kinesis

(d) Reflex

(iv) The biological clock controlling daily rhythms is called :

(a) Ultradian rhythm

(b) Circadian rhythm

(c) Infradian rhythm

(d) Seasonal rhythm

(v) Melatonin is mainly involved in:

(a) Digestion

(b) Reproduction only

(c) Sleep-wake cycle regulation

(d) Locomotion

2. Write short notes on any *five* of the following : 2×5=10

(a) Proximate vs. Ultimate causes of behaviour

(b) Biological oscillations

(c) Taxis and Kinesis

(d) Animal navigation

(e) Schooling behaviour in fishes

(f) Importance of the subject of chronobiology

(g) Zeitgebers

(h) Photoperiodism

(i) Role of melatonin

(j) Methods of studying animal behaviour

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3. Answer any *four* questions : 5×4=20

(a) Discuss the contributions of Karl von Frisch to animal behaviour.

(b) Explain classical conditioning with reference to Pavlov's experiments.

(c) Describe Konrad Lorenz's work on imprinting.

(d) Explain Tinbergen's four questions in ethology.

(e) Differentiate between instinctive and learned behaviour with examples.

(f) Describe animal orientation with reference to taxis and kinesis.

(g) Explain communication in honeybees (dance language).

(h) Discuss eusociality in termites and ants.

(i) Describe social behaviour in monkeys.

4. Answer any *one* question : 10

(a) Discuss the origin and history of ethology and its major contributors.

(b) Explain biological timekeeping and its adaptive significance.

(c) Describe the types and characteristics of biological rhythms in detail.

(d) Explain the role of environmental zeitgebers in regulating biological clocks.

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