B.Sc. 6th Semester (Honours) Examination, 2024 (CBCS)

Subject : Zoology

Course : DSE-3

(Animal Behaviour)

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Group – A

1. Answer *any five* of the following questions: 2×5=10

(a) What is lek Polygyny?

(b) Define imprinting.

(c) What do you mean by hawk-goose effect?

(d) Give examples of lunar and tidal rhythm.

(e) What is reciprocal altruism?

(f) What is jet lag?

(g) What is 'phase shift' in the study of biological rhythm?

(h) Write two advantages of group living.

Group – B

2. Answer *any two* of the following questions: 5×2=10

(a) Explain 'Hamilton's rule' in the context of Kin Selection.

(b) With appropriate diagram explain how waggle dance is helpful to determine the direction and distance of the food sources in honey bee.

(c) Describe the molecular mechanism underlying the Circadian clock of *Drosophila* highlighting key genes and proteins involved.

(d) Discuss different types of communication in animal world with examples.

Group – C

3. Answer *any two* of the following questions: 10×2=20

(a) Give an account of the Caste System in honey bee. Comment on the function of 'queen pheromone'. Justify the altruistic behaviour in haplodiploid insects. 4+2+4

(b) Explain how pineal gland controls the seasonal breeding in mammals. Differentiate between long-day and short-day breeder. Add a note on adaptive significance of biological clock. 4+2+4

(c) Discuss the intra and intersexual selection in the light of male-male competition and female mate choice. Discuss the possible theories/hypotheses that could explain why female mate choice has evolved in nature. 5+5

(d) What is classical conditioning? State the laws of classical conditioning. How does classical conditioning differ from operant conditioning? Explain the famous experiment of Pavlov in support of classical conditioning. 1+3+2+4

B.Sc. 6th Semester (Honours) Examination, 2024 (CBCS)

Subject : Zoology

Course : DSE-3 (OR)

(Wildlife Conservation)

Time: 2 Hours **Full Marks: 40**

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

Group – A

1. Answer *any five* of the following questions: 2×5=10

(a) How does population sampling differ from population census?

(b) If, in a population of 60 individuals, there are only 5 females then what is the effective population size?

(c) Elaborate with example — 'crude density' and 'ecological density'.

(d) What is Man & Biosphere (MAB) concept?

(e) Write the scientific name of any two critically endangered vertebrate species found in India. 1+1

(f) Mention the importance of Remote Sensing–Geographic Information System (RS-GIS) in wildlife conservation.

(g) State the significance of grazing in grassland habitat management.

(h) Define 'biodiversity hotspots'. Name one biodiversity hotspot found in India. 1+1

Group – B

2. Answer *any two* of the following questions: 5×2=10

(a) State the identifying features of pug marks of any two mammalian species with proper sketch. 2½+2½

(b) Elucidate the role of habitat fragmentation and invasive species in depletion of species diversity. 3+2

(c) Describe the major causes of wildlife depletion in India. Mention the importance of Sections 428 and 429 in wildlife protection in India. 3½+1½

(d) Mention the major conservation approaches in management of human-wildlife conflicts.

Group – C

3. Answer *any two* of the following questions: 10×2=20

(a) What is metapopulation concept? How could different perturbance methods be applied in wildlife and habitat management? Discuss the method of estimation of carrying capacity. 3+4+3

(b) Why conservation of tiger is of utmost importance in the present Indian context? State the reasons for the endangered status of tiger in the country. Explain the achievements of Project Tiger. Name two tiger reserves found in North-East India. 2+2+4+2

(c) Why is faecal matter analysis becoming a major tool in wildlife conservation? Does wildlife tourism have negative impacts on the wildlife in protected areas? Mention the importance of 'Keibul Lamjao National Park' as wildlife habitat. 4+4+2

(d) Define Keystone and Umbrella species with examples. What is Minimum Viable Population (MVP)? Elaborate the importance of core-buffer zonation and forest corridors in wildlife management. 4+2+4