

**2022**  
**B.A./B.Sc.**  
**Fifth Semester**  
DISCIPLINE SPECIFIC ELECTIVE – 1  
**ZOOLOGY**  
*Course Code: ZOD 5.11*  
(Animal Behaviour & Chronobiology)

*Total Mark: 70*  
*Time: 3 hours*

*Pass Mark: 28*

*Answer five questions, taking one from each unit.*

**UNIT-I**

1. Give a brief profile of Niko Tinbergen. Explain in detail about proximate and ultimate causes of animal behaviour. 4+10=14
2. Describe the origin and history of ethology. Explain how animal behaviours can be recorded. 4+10=14

**UNIT-II**

3. Write short notes on the following: 7×2=14
  - (a) Instinct vs learnt behaviour
  - (b) Associative learning
4. What are stereotyped behaviours? Briefly explain classical and operant conditioning. 7+7=14

**UNIT-III**

5. Give an account on the insect's society with reference to the honeybee. Explain the foraging in honeybee and advantages of the waggle dance. 7+7=14
6. Write short notes on the following: 7×2=14
  - (a) Asymmetry of sex
  - (b) Intra-sexual and inter-sexual selection

## UNIT-IV

7. Discuss biological oscillation with special emphasis on amplitude and period. 14
8. Explain in detail about historical developments in chronobiology. Add a note on the adaptive significance of biological clocks. 10+4=14

## UNIT-V

9. Explain the different types of biological rhythms. Write a short note on chronopharmacology. 10+4=14
  10. Explain the concept of synchronization and masking. Add a note on photic and non-photic zeitgebers. 7+7=14
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