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**School of Biological and Life sciences**

Bachelor of Science Honours in Zoology

Mid Term Examination - Mar 2024

Duration : 90 Minutes

Max Marks : 50

**Sem VI - P1UE602T - Chronobiology**General Instructions*Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Interpret the different components of circadian rhythms. Explain with the help of suitable wave diagram. K2 (2)
- 2) What are central clocks? Explain with the help of example. K1 (3)
- 3) Differentiate between the proximate and ultimate factors K2 (4)
- 4) Discuss the circadian timekeeping in cyanobacteria. K2 (6)
- 5) Interpret what will happen to the locomotion rhythm of tau mutant golden hamsters. Also, discuss how single clock gene mutants affect biological processes. K3 (6)
- 6) Explain the concept of circadian rhythm and how it is regulated by the *Drosophila* central clock. K3 (9)
- 7) Analyze the results and suggest the type of phase shift in the rat which was first maintained at 12L : 12D and then shifted to DD condition and a strong light impulse is applied to the rat which lead to change in phase from +6 to -3. K4 (8)
- 8) Explain the interplay between different neuronal clusters in the *Drosophila* brain involved in the central clock. How do these clusters coordinate to maintain circadian rhythms? K4 (12)

**OR**

- Point out the adaptive advantages of having a circadian clock in cyanobacteria. K4 (12)