

Date:16-03-2022

Registration number:

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

**BSc. ZOOLOGY- V SEMESTER**

**END SEMESTER EXAMINATION: OCTOBER 2021**

**(Examination conducted in January-March 2022)**

**ZO 5218 - Ecology Wildlife and Animal Behaviour**

**Time- 2 ½ hrs**  **Max Marks-70**

**Instructions:**

This question paper contains **3 printed pages and four parts.**

Answers in point form are acceptable. You may include figures to supplement your written answers where applicable.

**Part A**

**Answer ALL of the following questions Marks 1x7 = 7**

1. A large geographical are with often unique and characteristic vegetation, soil, and climate is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. According to Bergmann’s and Allen’s rule, the surface area to volume ratio in animals living in cold environments will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. Two typical measures in ecotoxicity are \_\_\_\_\_\_ and \_\_\_\_\_. (Unit 5 Global Envt)

4. Artificial lights at night disturbs \_\_\_\_\_\_\_\_\_\_\_ rhythm in animals

5. After being continuously exposed to a certain stimulus, the animal eventually stops responding because it has learned it need not respond to the stimulus. This learned behaviour is called \_\_\_\_\_\_\_\_\_\_\_.

6. Elephants are a flagship species used to leverage public support for conservation. Since the same conservation efforts also protect several other species in an ecosystem, elephants are also \_\_\_\_\_\_\_ species.

7. The biochemical alteration of drugs or toxins by an organism is called \_\_\_\_\_\_\_.

**Part B**

**Answer ALL of the following questions Marks 4x2=8**

8. What are three major community factors that contribute to density dependent regulation of population size?

9. How can temperature affect the sex ratio of populations of reptiles (e.g., alligators)?

10. Briefly explain what bioremediation is with an example.

11. What is a keystone species? Provide an example of a keystone species from a coral reef habitat and one from any terrestrial ecosystem.

**Part C**

**Answer ANY 5 of the following questions Marks 5x5=25**

12. Briefly describe the transitional dynamics of abiotic and biotic factors in a River basin (delta type) estuarine ecosystem at high and low tide. Utilize the word habitat heterogeneity in your answer appropriately.

13. Briefly explain Shelford’s law of tolerance with a diagram. Provide an example of how Sheldon’s law can vary between different life stages of the same organism.

14. In the equation **dN/dt = rN**, what is r and what information does **Ro** provide about populations over time?

15. What Biogeochemical cycle have anthropogenic factors altered the most to cause global warming and climate change? How does this cycle work and how is it being disrupted?

16. The figure below depicts a scenario in elephant population in a restricted habitat (habitat becomes smaller due to anthropogenic factors). What is **K** and what is happening to K in relation to **N**? What can be predicted if the habitat remains smaller than the elephants natural range?

Chart

Description automatically generated

Figure for Q16.

17. Explain optimal foraging theory with suitable example.

18. What are the major factors leading to biodiversity loss in India? What are some of the measures that can be taken to mitigate biodiversity loss? Use an example to support your answer.

**Part D**

**Answer ANY 3 of the following questions Marks 3x10=30**

19. a) Describe the zonation of marine systems with a diagram **(4m)**

b) What major abiotic components change with these zones and how? **(3m)**.

c) What sort of biotic assemblages and adaptations would you expect in Littoral, and abyssal zones? **(3m)**.

20. What are r- and K- strategists? Briefly explain how population and community processes, such as predation and competition have influenced the evolution of r and K life histories in animals with appropriate examples.

21. a) Briefly explain Hamilton’s rule and its relevance to altruism **(4m)**

b) List any four types of social groups in primates with one example each **(2m)**

c) What are the ecological and neurological significance of studying animal behaviour **(4m)**

22. **a)** What are the four major ways in which animals communicate? provide one example for each type, with emphasis on acoustic communication. **(5m)**

**b)** Explain the difference between associative and trial users learning with an example each. **(5m)­.**

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