ecosystem if one species is removed from a food web. (3+2+3+2)

4. Explain the concept of ecological pyramids and describe the three main types—pyramid of number, pyramid of biomass, and pyramid of energy. Discuss how each type represents different aspects of ecosystem structure and function, and provide one example where a pyramid may appear inverted. (6+4)

5. Explain the interrelationship between habitat, organism, and species. Using suitable examples, describe how changes in a habitat can affect individual organisms and potentially lead to changes at the species level. (6+4)

6. Explain the process of ecological succession and discuss how biotic interactions such as competition, predation, and mutualism influence the patterns and outcomes of succession in an ecosystem. (4+6)

7. Explain the importance of biodiversity for ecosystem stability and human well-being. Discuss the major threats to biodiversity and describe any four strategies used for the conservation of biodiversity (6+4)

8. Compare and contrast the carbon cycle and the nitrogen cycle in terms of their key processes, reservoirs, and the role of human activities in altering each cycle. Illustrate your answer with appropriate examples. (8+2)

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B.Tech Even Semester Examination, May, 2025

Agricultural Engineering / Computer Science & Engineering / Electronics & Communication Engineering

(4th Semester)

Course No: ASHA-252/MC-1/ASH-402

(Environmental Science)

Full Marks: 50
Pass Marks: 25
Time: 2 hours

Note:
1. Attempt any five questions.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. Discuss the structure and function of an ecosystem. In your answer, explain the roles of biotic and abiotic components, energy flow, and nutrient cycling. Use examples to illustrate your points. (4+6)

2. Compare and contrast the characteristics of tropical rainforest and desert biomes in terms of climate, vegetation, biodiversity, and adaptations of organisms. How do these differences influence the ecological processes in each biome? (5+5)

3. Explain the concepts of a food chain and a food web. How do they differ in terms of structure and ecological significance? Illustrate your answer with suitable examples. Discuss the impact on the