PG Odd Semester (CBCS) Exam., December—2016

ECOLOGY AND ENVIRONMENTAL SCIENCE

(1st Semester)

Course No. : ECGCC–102

(Population and Community Ecology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. What do you understand by group attribute of a population? Differentiate between crude population density and ecological density. Elucidate in detail various growth forms in population. 3+3+8=14

2. Write brief notes on the following : 7×2=14

(a) Population fluctuation

(b) Density-dependent and density-independent factors

UNIT—II

3. What are positive and negative population interactions? Elaborately explain taking one type from each of these categories. Add a note on their role in maintaining ecological balance. 2+(4+4)+4=14

4. *(a)* Define and explain interspecific competition. Explain Gause's principle with suitable example. (1+2)+4=7

(b) What is predation? Explain predator-prey interaction with suitable example. Add notes on mutualism and commensalism. 1+2+(2+2)=7

UNIT—III

5. *(a)* What do you understand by sampling? Enumerate and explain the various techniques of vegetation sampling. 10

(b) The species ‘A’ was sampled for cover estimation using the line intercept technique. The following values were obtained :

l_1 200 cm, l_2 389 cm, l_3 850 cm,
l_4 300 cm, l_5 50 cm, l_6 176 cm

The length of the transect was 3 m. Calculate the percent cover of ‘A’. 4

6. Write short notes on the following : 7×2=14

(a) Ecological niche

(b) Community concept

UNIT—IV

7. What is ecosystem development? Explain briefly the primary and secondary succession. Comment on the mechanism of climax formation in the ecosystem development. 3+7+4=14

8. Write an account on ‘ecotone’ and ‘edge effect’. Add a note on the ‘r’ and ‘k’ selection strategies. 9+5=14

UNIT—V

9. Write down the characteristic features of mangrove ecosystem. Name the old and new world mangrove groups. Mention threats of mangrove ecosystem and initiatives taken for their conservation. 5+3+6=14

10. Write short notes on the following : 7×2=14

(a) Animal communities in desert ecosystem

(b) Zonation of plant species across altitudinal gradient

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