CLASS: MTECH   SEMESTER : I
BRANCH: CIVIL   SESSION : MO/19

SUBJECT: CE527 ECOLOGY AND ENVIRONMENT

TIME: 3:00 HOURS   FULL MARKS: 60

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
4. **Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a) Construct the earth's atmosphere with the typical variations of temperature and pressure.   [5]
Q.1(b) Explain the principle and functioning of an alternate black and white sensing solarimeter.   [5]

Q.2(a) Elaborate the factors determining the ecological efficiency of a trophic level with necessary formulas.   [5]
Q.2(b) An ecosystem consist of a species, having count of 15000 and intrinsic rate of increase is 0.2, Carrying   [5]
        capacity is 80000, Determine the population after 05 years.

Q.3(a) Discuss the recent threats to biodiversity with examples in each case.   [5]
Q.3(b) Determine the Shanon-Weiner diversity and evenness of an ecosystem containing 5 species (35, 28, 12,   [5]
        22, 03).

Q.4(a) Identify the problems associated with overpopulation on environmental degradation and public health.   [5]
Q.4(b) Discuss on CDM.   [5]

Q.5(a) Suppose you have to identify a bacteria capable of degrading plastics. How would you experiment in   [5]
        laboratory and optimize the best degrading performance?
Q.5(b) Determine the moisture and nutrient requirement $((NH_4)_2SO_4)$ for a 100 kg toluene (C_7H_8) contaminated   [5]
        soil of 1000 sq ft, with a porosity of 20% and initial saturation of 5% for biodegradation.

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