BITS C494/CE F434   Environmental Impact Assessment   Dated: 8.12.2017

Comprehensive Examination (Closed Book)

Max. Marks: 80   Duration: 180 minutes

Answer all questions.
Answer all parts of a question together.

1. i) Write and explain different steps involved in Environmental Management System.

    ii) Write and explain the different steps involved in preparation of on site emergency plan for fire emergency.

    (2X4=8)

2. i) Explain nitrogen cycle in nature.

    ii) Write and explain the population dynamic model for change in population

    iii) Discuss Descriptive-checklist methodology for addressing 5 socio-economic aspects.

    iv) Discuss the air pollution index method for the determination of air pollution indices.   (3x4=12)

3. i) Draw the flow diagram for summary of cause-effect network for surface water.

    ii) Prepare an Environmental Impact Assessment Report on Biodiversity for BITS Pilani Campus. Discuss with examples.

    iii) List and explain 5 factors for the identification of activities which have direct land use impact on land.

    iv) Explain the law and guidelines pertaining to hazardous waste management.   (4x4=16)

4. i) Explain Leopold Interaction Matrix for impact prediction for expansion of Krishna-Gandhi Bhawan.

    iii) List and explain salient points of Public Hearing.   (2x2=4)

5. The sound level weighing functions for average noise levels in dB, based on the reaction of populations and other social survey at ITO, Delhi has been defined as per the table below:

    The average noise levels at 8 zones in the Delhi region and the population in each of these zones are listed below. Calculate the noise impact index at Delhi.

L_{dn} (dB)	$W(L_{dn})$
35	0.01
40	0.02
45	0.05
50	0.09
55	0.18
60	0.32
65	0.54

70	0.83
75	1.20
80	1.70
85	1.90

Locations	Average Noise Level (dB)	Population complained (in thousands)
Zone 1	80	20.1
Zone 2	75	18.5
Zone 3	70	16.5
Zone 4	65	10.3
Zone 5	60	8.9
Zone 6	55	7.2
Zone 7	50	3.5
Zone 8	45	1.9

(20)

6. A power plant burns 6.0 tonnes of coal per hour and discharges the combustion product through a stack that has an effective height 70 m. The coal has a sulfur content of 4.6 percent and the wind velocity on the top of the stack is 7 m/s. Determine the maximum ground level concentration and the distance from the stack at which the maximum occurs. (stability Class C) (10)

7. A wastewater treatment plant disposes off its effluents into a stream at a point A. Characteristics of the stream at a location fairly upstream of A and of the effluent as follows:

Item	Unit	Effluent	Stream
Flow	m^3/s	0.3	0.6
Dissolved Oxygen	mg/l	3	8
Temperature	^0C	20	20
BOD_5 at 20^0C	mg/l	40	2

Assume that the de-oxygenation constant K_1 at 20^0C at base e = 0.2 per day and the re-aeration constant at base e = 0.4 per day. For the mixture equilibrium concentration of dissolved oxygen Cs for the fresh water is as follows:

Temperature ,^0C	18	20	22	23	24	25	26
C_s , mg/l	9.54	9.17	8.99	8.83	8.53	8.38	8.22

The velocity of stream downstream of the point A is 0.2 m/s. Determine the critical oxygen deficit and its location. (10)

Paper ends