

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION - 2017

M.Tech I Semester

COURSE CODE: 14M31CE114

MAX. MARKS: 35

COURSE NAME: EIA & RISK MANAGEMENT

COURSE CREDITS: 03

MAX. TIME: 2.0 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume suitable data if required.

- Q1. a) What does Pertinent Institutional Information (PII) refer to? Mention the sources of information and the approach (s) used to aid the PII? [02 Marks]
- b) What is the most challenging activity in EIA process and how it is accomplished? [03 Marks]
- Q2. a) Explain briefly the "Delphi Approach" used to calculate WQI. [02 Marks]
- b) Estimate the Water Quality Index (WQI) for the data given below. [04 Marks]

Sl.No.	Variable	Measurement	Subindex Value, I_i	Importance Weights, W_i
1.	Dissolved Oxygen	40%	30	0.17
2.	Fecal Coliforms	10^2	40	0.15
3.	pH	7	90	0.12
4.	BOD ₅	5	55	0.10
5.	NO ₃	10	55	0.10
6.	PO ₄	1	40	0.10
7.	Temperature Deviation	5	40	0.10
8.	Turbidity	20	60	0.08
9.	Total Solids (TS)	225	70	0.08

Descriptor words	Very Bad	Bad	Medium	Good	Excellent
Range	0 - 25	26 - 50	51 - 70	71 - 90	90 - 100

- Q3.a) List various categories of sources of air pollution for emission inventories and give examples under each category. [02 Marks]
- b) What are the steps involved in addressing air quality impacts and mention the key information required in each step [02 Marks]
- c) What aspects does meteorology cover? What is its importance in assessment of impacts on air quality? [02 Marks]

Q4.a) Define "Emission Factor" and its significance in prediction and assessment of air quality impacts. **[02 Marks]**

b) Estimate the quantity of fugitive dust emission from an unpaved road, per vehicle-mile of travel using the following empirical expression: **[03 Marks]**

$$E = k(5.9) (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5} \{(365-p)/365\}$$

where E = emission factor in pounds (lb) per vehicle miles traveled (VMT)

Given:

k = particle size multiplier (dimensionless) = 0.36 for PM₁₀

silt content of road surface material = 12%

Average vehicle speed = 25 mph

W = mean vehicle weight (ton) = 20 tons

w = mean number of wheels – assumed to be 4

p = number of days with at least 0.01 inches of precipitation per year – average of 37 days per year

Q5.a) Define the terms related to water quality standards and planning: **[03 Marks]**
i) Load Allocation ii) Waste Load Allocation and ii) BMP

b) A 5.0-MLD wastewater flow has a BOD concentration of 800mg/L of BOD. Using an average of 0.075 kg/day BOD per person, what is the Population Equivalent of this wastewater flow? **[03 Marks]**

c) What are the salient features of QUAL – IIE Model? Mention at least 5 impact mitigation measures to control surface water pollution. **[03 Marks]**

Q6.a) What do you mean by "Pollutant Standards Index (PSI)" and how it is established? **[02 Marks]**

c) According to EPA, what is meant by "Risk Assessment"? What are the factors on which risk depends? **[02 Marks]**