BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI

I SEMESTER 2017-2018

CE F434/BITS F494 Environmental Impact Assessment Dated: 12.10.2017

Mid Semester Test (Open Book)

Max. Marks: 35 Duration: 90 minutes

---

1. The composition of the air at a monitoring station at Delhi is found to contain the following five pollutants in the given concentrations: (10)

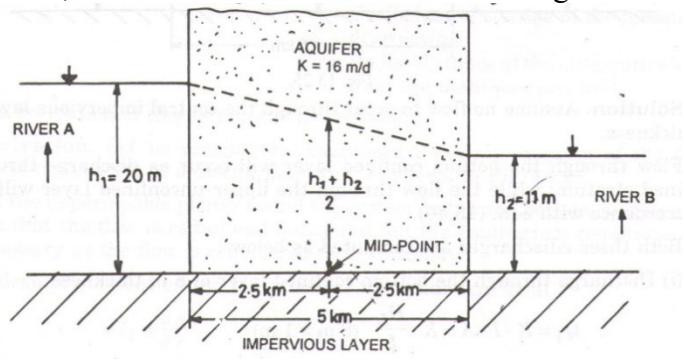
Pollutant	Concentration
PM_{10}	280 μg/m^3
SO_2	0.6 ppm
CO	30 ppm
O_3 (8- hour)	0.03 ppm
NO_2	1 ppm

If the PSI of the air pollutants at Delhi is calculated using linear interpolation method depending on the concentration based on the standard table below, determine the air quality category at Delhi based on the Air quality index.

O_3 (ppm) 8 - hour	PM_{10} (μg/m^3)	CO (ppm)	SO_2 (ppm)	NO_2 (ppm)	PSI
0.000 - 0.069	0 – 54	0.0 - 4.4	0.000 - 0.034	-	0 – 50
0.070 - 0.084	55 - 154	4.5 - 9.4	0.035 - 0.144	-	51 – 100
0.085 - 0.104	155 - 254	9.5 - 12.4	0.145 - 0.224	-	101 – 150
0.105 - 0.124	255 - 354	12.5 - 15.4	0.225 - 0.304	-	151 – 200
0.125 - 0.374	355 - 424	15.5 - 30.4	0.305 - 0.604	0.65 - 1.24	201 – 300
-	425 - 604	30.5 – 50.4	0.605 – 1.004	1.25 – 2.04	301 – 500

2. (i) The rates of rainfall for the successive 30 min period of a 3 hour storm are: 1.6 , 3.6, 5.0, 2.8, 2.2 and 1.0 cm/hr. The corresponding surface runoff estimated to be 3.6 cm. How much pollutant will go into the ground if the pollutant concentration is 0.15 mg/l? Take catchment area as 100 ha. Also find out the pollutant load in the ground when the rainfall is in excess, take Ø index = 1.6 cm/hr. (5)

(ii) Two rivers A and B are separated by an aquifer formation of 5 km length. Compute the seepage flow per unit length of river, if the coefficient of permeability of aquifer material is 16m/day. Also find the chromium load in seepage water in kg/hr per unit length of river water , if the chromium concentration is 2 mg/l. (5)



3. Prepare a consolidated checklist for thermal power plant. (4)

4. Discuss different activities in a copper mining project likely to have impacts on soil and ground water environment. (4)

5. (i) Discuss mitigation measures necessary to prevent soil erosion. (2)
   (ii) Discuss different steps for selection of wind power project site by GIS and overlay methods. (3)
   (iii) What do you understand by cumulative impacts ? explain with example. (2)

Paper ends