Registration no:

B.TECH
                                                                      HSSM3402

8th Semester Regular / Back Examination 2016-17
ENVIRONMENTAL ENGINEERING
BRANCH(S): CSE, FASHION, FAT, IT, ITE, MECH, METTA, MME, TEXTILE
Time: 3 Hours
Max Marks: 70
Q.CODE: Z104
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   Answer the following questions: **(2 x 10)**
  a) What are objectives of EIA?
  b) What are Criteria & Non Criteria pollutants?
  c) Write any two environmental laws with their year of inception.
  d) Write the basic parts of Waste Minimization strategy?
  e) Mention the permissible limit of color for good quality water as per Indian Standard.
  f) Differentiate between Ambient and Adiabatic Lapse Rate.
  g) The Sound from source voice of shouting is 0.001W. What is the Sound Power level in dB?
  h) Name some Household Hazardous Waste.
  i) Differentiate between Lifecycle Assessment (LCA) and Environmental Impact Assessment (EIA).
  j) Determine the quantity of Alum required by 13 million liters of water per day at a treatment plant where 12 ppm of Alum dose is required.

Q2 a) Define Ecosystem.   **(2)**

   b) Explain pond as an aquatic ecosystem showing the interaction between abiotic and biotic constituents and schematic representation.   **(8)**

Q3 a) Define Sludge Volume Index (SVI) and explain its use in the design and operation of an Activated Sludge Process treatment plant.   **(5)**

   b) List four major air pollutants for which the Central Pollution Control Board of India designated ambient air quality standards.   **(5)**

Q4 **a)** What is environmental gradient and how the tolerance level can be explained on the basis of environmental gradient? **(5)**

b) BOD of an effluent sample incubated for one day at 30^0C was found to be 100 mg/L, What would be the 5 day BOD at 20^0C? [$K_d = 0.12$ day^{-1}, & $\theta = 1.047$] **(5)**

Q5 **a)** Briefly discuss the plume behavior under different stability conditions by means of neat diagrams. **(5)**

b) A fabric filter is to be constructed using bags of 0.25m diameter and 6.0m long. The bag house is to receive 15m^3/s of air. Given the filtration rate of 2.2 m/min. Determine the number of bags required. **(5)**

Q6 **a)** Discuss the step by step Environmental Clearance of a project with the help of a flow sheet? **(5)**

b) What are Bio-medical Wastes? Enlist some of them along with their sources. **(5)**

Q7 **a)** Name four toxic heavy metals and their sources. **(5)**

b) What do you mean by DRE? Differentiate between CO and CO_2 concentration effect from the incinerator as a flue gas. **(5)**

Q8 **Write short answer on any TWO:** **(5 x 2)**
a) Carbon cycle
b) Photochemical Smog
c) Ecological pyramids
d) Fugitive emissions