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Total Number of Pages: 02

B.TECH
HSSM3303

5th Semester Regular / Back Examination 2015-16

ENVIRONMENTAL ENGINEERING & SAFETY

BRANCH: AEIE, BIOMED, CHEM, CIVIL, EC, EEE, EIE, ELECTRICAL, ETC, IEE, MINING

Time: 3 Hours

Max Marks: 70

Q.CODE: T499

**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) Define Food Chain & Food Web?
 - b) What are GPP & NPP in an ecosystem?
 - c) What are the two common types of Reactors in waste water treatment?
 - d) Mention some physical Properties of sound?
 - e) What is Terms of Reference (ToR) in EIA Study?
 - f) What is MSW land fill?
 - g) What are the benefits of Waste minimization?
 - h) What are the three T's of Incineration?
 - i) What is Fire Triangle? Explain
 - j) What do you mean by super adiabatic condition of the atmosphere?
- Q2 a) Mention the any two environmental laws which have been enacted in our country to tackle environmental pollution. Name the statutory bodies dealing with various environmental laws in our country? (5)**
- b) Describe the effect of Oxygen demanding Waste on the water environment? (5)**
- Q3 a) Briefly discuss the plume behavior under different stability conditions by means of neat diagrams? (5)**
- b) BOD of an effluent sample incubated for 1 day at 30⁰C was found to be 100mg/L What would be the 5 day BOD at 20⁰C (Kd = 0.12 day⁻¹ at 20⁰C.) (5)**
- Q4 Explain the concept of source-path-receiver with respect to noise pollution. (10)**
If an industrial fan generates An Air conditioner generates a noise of 65dB for ten minutes every hour. If the back ground noise level is 55dB
Compute Equivalent continuous Label Leq ?

- Q5** a) List some common Hazardous wastes and describe its management Principles? (5)
b) A quantity of $50\text{m}^3/\text{s}$ of air flows from cement manufacturing facility which contains particles with settling velocity of 0.12 m/s if 99% removal efficiency is required . Calculate the plate area of the ESP? (5)
- Q6** a) What is Flue Gas Desulphurization? What are the main advantages of using limestone for it? (5)
b) Find the volume of the biogas produced in an anaerobic digester with a flow rate of $360\text{ m}^3/\text{hr}$. COD in waste sludge is 125000mg/L . Neglecting growth rate assume biodegradable fraction of organic waste (n) as 0.85. (5)
- Q7** a) What is the need for Integration of Safety, Health & Environment? (5)
b) Calculate the Severity rate of Accident in an industrial plant from the following Data: (5)
Number of Workers in the plant: 3000
Number of Days Lost due to accident: 100
Average number of days worked by the worker per year: 2000
- Q8** Write short notes on any two: (5 x 2)
a) Destruction And Removal Efficiency(DRE)
b) Environmental Auditing
c) Wind rose Diagram
d) Break Point Chlorination

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