Total No. of Printed Pages:2

SUBJECT CODE NO:- H-299
FACULTY OF SCINECE AND TECHNOLOGY
T.E. (Chemical) (Sem-I)
Industrial Pollution & Control
[Old]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Q.no.1 and 06 are compulsory.
2. Answer any two questions from remaining of each section
3. Assume suitable data if required and draw neat sketches whenever needed.

Section – A

Q.1 Explain following terms (any five): 10
- A) Erosion.
- B) Decibel.
- C) Chlorosis.
- D) Looping.
- E) Particle resistivity.
- F) Demerit of fabric filters.

Q.2
a) Explain pollution control aspects of waste water treatment. 07
b) Describe Industrial gaseous Effluent analysis. 08

Q.3
a) Explain following terms a) Lapse rate b) Adiabatic lapse rate and c) Wind rose 08
b) What are characteristics of particulate? Explain in detail. 07

Q.4
a) Explain with neat sketch principle, construction and working of ESP. 08
b) A packed filter handing $1 m^3/s$ of std. air is packed with fibers of size $100 \mu m$ in diam. 07
Dust laden air passes through the filter with velocity of 1.5m/s and the packing density is 0.1 the ave. diameter of the particles in the air is $1 \mu m$ and the individual fiber efficiency.

Q.5 Write short note on: 15
- i) Wind velocity and turbulence.
- ii) Economic effect of Air pollution.
- iii) High efficiency cyclones.

Section – B

Q.6 Explain following terms (any five): 10
- i) TOC.
- ii) Dilution factor.

iii) Flocculent settling.
iv) Protoplasm.
v) Reduction precipitation.
vi) Microstraining.

Q.7 a) $10m^3$/day of liquid effluent from food processing unit is to be treated by the activated sludge process at 30^oC from an initial $(BOD)_5$ days of 650mg/l to a final $(BOD)_5$ days of 25mg/l. bench scale studies at 20°C and mixed liquor biomass conc. of 3000mg/l gave BOD removal rate coefficient of 14 per days. 08
Estimate the retention time and size of unit $\theta_1 = 1.02$
b) Explain in detail oxygen sag curve. 07

Q.8 a) Determine the depth of a low rate trickling filter that has a diameter of 40m. The hydraulic loading is $0.15m^3/s$ and influent and effluent BOD_5 are 250mg/l and 30 mg/l. The unit operates at 27°C Assume the empirical constants m=n=1 and K_{25}=0.1 m/d the packing media are rocks which have a porosity of 0.5 and a sphericity of 0.8 the geometric mean size of the rocks is 80mm. 08
b) Describe Activated sludge process with neat sketches. 07

Q.9 a) Explain pollution control in Pulp and paper industries. 08
b) Describe removal of mercury from liquid streams. 07

Q.10 Write short note on: 15
a) Waste stabilization ponds.
b) Flotation.
c) Comparison of tricking filter and activated sludge process.