Total No. of Printed Pages:2

SUBJECT CODE NO:- H-103
FACULTY OF SCIENCE AND TECHNOLOGY
T.E. (Civil)
Environmental Engineering - I
(OLD)

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

Please check whether you have got the right question paper.

N.B
1) Attempt any three questions from each section.
2) Q.1 from section A & Q.6 from Section B are compulsory.
3) Assume suitable data wherever necessary.
4) Draw neat & labeled diagram whenever necessary.

Section- A

Q.1	a)	Explain Primary & secondary air pollutant & describe in brief.	05
	b)	Explain the effect of air pollution on	05
		a) Animal	
		b) Vegetation	
		c) Human.	

Q.2 a) A factory uses 2.50000 litres of furnace oil (specific density is 0.97 / month). If for 1 million   08
liter of oil used per year. The particulate matter emitted is 3.0 tonnes / year. SO_2 Emitted is
59.7 tonnes/year, No_x emitted is 7.5 tonnes/year, hydrocarbons emitted are 0.37 tonnes / year
& carbon monoxide emitted is 0.57 tonnes / year calculate the height of chimney required to
be provided for safe dispersion of the pollutant.

   b) Enlist various equipment used for control of SPM. Draw neat sketch of any two.   07

Q.3 a) Write down air pollution law & ambient air quality standard.   08
   b) Explain the following atmospheric conditions   07
      (i)   Super adiabatic
      (ii)   Sub adiabatic
      (iii)   Neutral
      (iv)   Inversion

Q.4 a) Explain the plume behaviour of the gaseous effluent.   07
   b) Define wind rose. Explain the importance of wind roses in air pollution studies.   08

Q.5 Write short note on (any three).   15
   (a) Inversions
   (b) Dispersion model
   (c) Settling chamber
   (d) Acid rain
   (e) Atmospheric dispersion.

Section-B

Q.6   a)   Define & explain 'flowing through period' & 'detention period' in a sedimentation tank.   05
      b)   Discuss various chemicals used for coagulation.   05

Q.7   a)   Enlist different types of filters. Discuss in detail 'Rapid sand gravity filter'.   08
      b)   Explain briefly the following process.   07
           (i)   Breakpoint chlorination
           (ii)   Super chlorination

Q.8   a)   Enlist the different population forecasting methods. Explain any two in detail.   07
      b)   Enlist & discuss minor methods of Disinfection.   08

Q.9   a)   Find the settling velocity of discrete particles in water under condition when Re<0.5 the diameter and specific gravity of particle is 5×10^{-3} cm & 2.65 respectively. Water temperature is 20°C & kinematic viscosity of water at 20°C is 1.01×10^{-2} cm^2/sec.   07
      b)   Discuss the physical, chemical & Biological characteristics of water.   08

Q.10   Write short note on (any three)   15
           (a) Aeration
           (b) Layout of water supply
           (c) Operational troubles in filters
           (d) Pressure filter
           (e) Coagulation