

SUBJECT CODE NO: E-05
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CIVIL) Examination Nov/Dec 2017
Environmental Engineering - I
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.

- 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 if necessary.
- 4) Draw neat & labeled diagram wherever necessary.

Section A

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|-----|---|----------------|
| Q.1 | a) What is photochemical smog? & how it is formed?
b) Explain the function of control board to control air pollution. | 05
05 |
| Q.2 | a) Distinguish between
i) Primary & secondary air pollutants.
ii) Stationary & mobile sources of air pollutant.
b) A coal fired thermal power plant burns 6.25 tonnes of coal per hour & discharge the combustion products through a stack having an effective height of 80m the coal has a sulphur content of 4.7% & wind velocity at the top of stack is 8.0 m/s. Atmospheric condition are moderately to slightly unstable. Determine the maximum ground level of conc.SO ₂ & the distance from stack at which max occurs. | 08
07 |
| Q.3 | a) What are the advantages & disadvantages of ESP?
b) Enlist various equipment used for control of suspended particulate matter. Draw neat sketch of any one in detail. | 07
08 |
| Q.4 | a) What is air prevention & pollution control act – 1981?
b) State the effect of smoke on
i) Public health
ii) Property
c) With a neat sketch explain the principle, working of a cyclone separator. | 05
05
05 |
| Q.5 | Write short note on (<u>any 3</u>)
a) Ozone depletion
b) Effect of air pollution on human health
c) Gaussian Dispersion model
d) Aerosoles
e) Spray towers | 15 |

Section B

- Q.6 a) Explain rectangular sedimentation tank with neat sketch with respect to its working. 05
b) What is a 'river intake'? What are the factors which govern the location of intake structure? 05
- Q.7 a) Discuss the physical, chemical & biological characteristics of water. 08
b) 2 million litres of water per day is passing through sedimentation tank which is 8m wide, 15m long & having a water depth 3m. 07
a. Find the detention period of the tank.
b. What is average flow velocity through the tank?
c. If 60 ppm is the concentration of suspended solids present in turbid water, how much dry solids will be deposited per day in the tank. Assuming 70% removal in the basin & average specific gravity of deposit as 2.
d. Compute the overflow rate.
- Q.8 a) Enlist & explain minor methods of Disinfection. 07
b) Enlist type of filter & describe slow sand filter in detail. 07
- Q.9 a) Discuss the relative merits of rapid Gravity filters. 07
b) Design a rapid sand filter unit for 4 MLD of supply with all principle content. 08
- Q.10 Write short note on (any 3) 15
a) Groundwater recharge
b) Pressure filter
c) Aeration
d) Filter material
e) Population forecasting