Total No. of Questions : 12]

SEAT No. :

P2364

[Total No. of Pages : 3

[4758]-508

T.E. (Civil)

ENVIRONMENTAL ENGINEERING - I

(2012 Pattern) (Semester - II) (End - Sem.)

Time : 2 ½ Hours] *[Max. Marks :70*

Instructions to the candidates:

1) ***Answer Q.1 or 2, Q.3 or 4, Q.5 or 6, Q.7 or 8, Q.9 or 10, Q. 11 or 12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***
5) ***Use of Scientific calculator is allowed.***

Q1) Explain the noise control techniques. **[6]**

OR

Q2) Explain primary and secondary air pollutants and state their importance. **[6]**

Q3) Explain with neat sketch the working, location and function of air relief valve and non-return valve. **[6]**

OR

Q4) Explain with neat sketch river intake and lake intake. **[6]**

Q5) Explain type I and type II settling. What are the various types of plain sedimentation basins? Explain any one basin type with a neat sketh. **[8]**

OR

P.T.O.

Q6) Design a tube settler module with the following data- **[8]**

a) Average output required from tube settler = 250m^3/hr.

b) Loss of water in desludging = 2% of output required.

c) Average design flow = (250 x 100)/(100-2) = 255.1 m^3/hr.

d) Cross section of square tubes - 50mmx50mm.

e) Length of tubes = 1m.

f) Angle of inclination of tubes 60°.

Q7) Design a clariflocculator for desired average outflow of 250m^3/hr, water lost in desludging-2%, design average flow = (250x100)/ (100-2)=255.1 m^3/hr, detention period - 20 minutes and average value of velocity grdient G = 40/ second. **[16]**

OR

Q8) Design a RSGF unit for treating 400 MLD of supply, with underdrainage system and wash water troughs. **[16]**

Q9) a) Explain chlorine demand, residual chlorine, super chlorination, dechlorination, rechlorination and post chlorination. **[9]**

b) Chlorine usage in treatment plant of 20MLD of water is 8.5 kg/day. The residual chlorine content after 10min. is 0.2 mg/L. Calculate dosage of chlorine in mg/L and chlorine demand of water. **[4]**

c) State the factors affecting chlorination. **[3]**

OR

Q10) State the principles, working, advantages and disadvantages of water softening by zeolite method and demineralization of water by ion exchange method. **[16]**

Q11)a) Describe the various layouts of distribution networks in water supply scheme and state their advantages and disadvantages. **[10]**

b) Explain detection and prevention of wastage of water. **[8]**

OR

Q12)a) Explain the benefits of rain water harvesting and discuss the different methods of rain water harvesting. **[10]**

b) Explain RO process with a neat sketch. **[8]**

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