Total No. of Questions : 12]

SEAT No. :

P3151

[Total No. of Pages : 2

[4858]-1008

T.E. (Civil) (Semester - II)

ENVIRONMENTAL ENGINEERING - I (End - Sem)

(2012 Pattern)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 orQ10, Q11 or Q12***
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) Discuss the sources and effects of noise pollution. **[6]**

OR

Q2) Explain the principle and working of settling chamber for removing particulate matter. **[6]**

Q3) Explain with neat sketch the working, location and function of river and canal intake. **[6]**

OR

Q4) Explain the factors affecting the rate of demand. **[6]**

Q5) Draw the flow diagram/layout of a water supply scheme using Rapid sand filter .Write clearly the purpose of each unit in the water supply scheme. **[8]**

OR

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= (250x100)/(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°

P.T.O.

Q7) Design a clariflocculator for desired average outflow of 250m^3/hr, water lost in desludging - 2%, design average flow = (250 ×100)/(100-2) = 255.1 .m3/hr, detention period - 20 minutes and average value of velocity gradient G = 40/ second. **[16]**

OR

Q8) a) Explain the theory of filtration. **[4]**

b) With a neat sketch explain back washing of rapid sand gravity filter. **[6]**

c) What is coagulation & flocculation? Draw a neat sketch of a flocculator. **[6]**

Q9) a) Explain break point chlorination. Define disinfection and list the different types of disinfectants used. **[8]**

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

c) State the factors affecting disinfection **[4]**

OR

Q10)a) Explain demineralization of water by Reverse Osmosis method. **[6]**

b) Discuss colour&odour removal by adsorption. **[6]**

c) Explain fluoridation &deflouridation of water. **[4]**

Q11)a) Differentiate between continuous & intermittent system of water supply. **[6]**

b) Explain detection and prevention of wastage of water. **[6]**

c) With a neat sketch explain dead end & reticulated distribution system. **[6]**

OR

Q12)a) Explain the benefits of rain water harvesting and discuss the different methods of rain water harvesting. **[9]**

b) Discuss the concept of packaged WTP for townships **[9]**