Total No. of Questions :8]

SEAT No. :

P4527

[Total No. of Pages :1

[4860] - 609

M.E. (Civil) (Water Resource & Environmental Engg.)

b - ADVANCED WATER TREATMENT & WATER SUPPLY ENGINEERING

(2012 Pattern) (Semester - I) (Elective-II) (501605)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer any three questions from section-I & section-II.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
5) ***Assume suitable data, if necessary.***

SECTION-I

Q1) Explain in detail the principle and working of reverse osmosis and micro filtration for water treatment. **[16]**

Q2) Discuss the principle, concept and necessity of aeration. Explain various methods of aeration with neat sketches. **[16]**

Q3) Explain in detail the principle, working and types of grit chambers. Discuss the process for disposal of grit. **[16]**

Q4) Design an aerated grit chamber for the treatment of municipal wastewater. The average flow rate is 0.5 m^3/s. Take peak factor as 2.75. **[18]**

SECTION-II

Q5) Explain construction and working process for dual media filters with a neat sketch. Explain backwashing of RSGF. **[16]**

Q6) Define Adsorption processes. State the factors influencing adsorption. Discuss different types of GAC contactors with sketches. **[16]**

Q7) a) What is the theory of disinfection? State the factors affecting disinfection. Discuss the chemistry of chlorination. **[8]**

b) Briefly discuss ion exchange materials and typical ion exchange reactions. **[8]**

Q8) Design a RSGF unit for treating 4 MLD of supply, with under drainage system and wash water troughs. **[18]**

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