

B.E.Sixth Semester (Civil Engineering) (C.B.S.)
Environmental Engineering - II

P. Pages : 2

Time : Three Hours



NKT/KS/17/7378

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Assume suitable data whenever necessary.
 10. Diagrams and chemical equations should be given whenever necessary.
 11. Illustrate your answers whenever necessary with the help of neat sketches.
 12. Use of non programmable calculator is permitted.

1. a) Define sewage, sewer & sewerage system. Explain data required in the planning of sewerage system. 7

b) Describe conservancy & water carriage system with their merits and demerits. 7

OR

2. a) Discuss the relative merits & demerits of separate, combined & partially separate system of sewerage. 7

b) Design a main sewer line for a colony of population 20,000. The per capita demand of water supply is 135 LPCD. The sewer line is to be laid at a slope of 1/600. Use manning's coeff. 'n'=0.012. The design discharge is 1.5 times. The avg discharge & the sewer is to be design as a half full section. 7

3. a) State various types of traps used in house drainage. 7

b) Write short notes on ventilation of sewer. 6

OR

4. a) Explain the various system of house plumbing with the help of neat sketch. 7

b) Enlist the sewer appurtenance. Explain manhole. 6

5. a) 5 Day BOD at 20°C of a waste water sample is 240 mg/lit. Determine 4 days BOD at 30°C. Assume deoxygenation constant at 20°C $K_{20} = 0.1$ day. 6

b) Design a primary sedimentation tank for a max flow of 10 MLD. Assume suitable data. 7

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NKT/KS/17/7378

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6. a) Draw a flow sheet of sewage treatment plant & briefly explain it's units. 7
b) What are the points that are kept in mind while making a site selection of STP. 6
7. a) Explain the working of trickling filter with neat sketch. 7
b) What do you understand by self purification capacity of a stream. Explain the process involved in this. 7
- OR**
8. a) Explain in details activated sludge process. 7
b) What are the different methods of disposal of sewage. Discuss sewage farming. 7
9. a) What are the different types of privies ? Explain with neat sketch Aqua Privy. 7
b) Explain the terms : 6
i) Equalization ii) Neutralization.
- OR**
10. a) Design a septic tank for a small colony of 200 person. Rate of water supply is 135 lpcd. Assume suitable data. 7
b) Explain with the help of neat sketch the working of "Gobar Gas Plant". 6
11. a) Define air pollution & explain various sources of air pollutants. 6
b) Which equipment are used for controlling particulate emission ? Explain any one with neat sketch. 7
- OR**
12. a) Discuss the effect of air pollution on human health. 6
b) What are the metrological parameter influencing the air pollution. 7
