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

P. Pages : 2

Time : Three Hours

0827

Max. Marks : 80

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Notes :   1. All question 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. Assume suitable data whenever necessary.
9. Illustrate your answers whenever necessary with the help of neat sketches.
10. Use of non programmable calculator is permitted.

1. a) Find the diameter of a circular sanitary sewer for the following data :-   **7**
i) Population-12500 persons.   ii) Rate of supply -135 lpcd.
iii) Velocity of flow is server = 1m/sec.

b) Differentiate between :-   **6**
a) Sullage & Garbage.   b) Dry waste & liquid waste.
c) Dry weather flow & storm water.

OR

2. a) A sewer, having diameter 1.20m, is laid at a gradient of 1 in 400. Calculate the velocity of   **7**
flow & discharge through this sewer when running one-half full. Assume N = 0.012 in
manning's formula.

b) Differentiate between combined system & separate system of sewerage system.   **6**

3. a) Define Inverted siphon. Describe it with the help of neat sketch.   **7**

b) Write short notes on – **any two.**   **6**
i) Anti-siphonage pipe.   ii) Drop manhole.
iii) Automatic flushing tank.

OR

4. a) What are 'traps' why is it necessary that all Sanitary fittings should be provided with   **7**
individual traps? Star the different traps in use.

b) What points should be kept in mind while locating the site of pumping stations? What are   **6**
the requirements of sewage pump.

5. a) The following observations were made on a 5% dilution of a sample of sewage :   **7**
a) Dissolved oxygen of Blank = 3.3 mg/lit.
b) Dissolve any gen of diluted sample after 5 days incubation = 0.89 mg/lit.
c) Dissolve any gen of original sample = 0.55 mg/lit calculate the ultimate B.O.D. of
the sample.

b) Draw a layout of a conventional sewage treatment plant & state function of each unit.   **6**

OR

6. a) Write short notes on **any two**: **6**
    i) BOD & COD.   ii) Old and grease removal.
    iii) Site selection for sewage treatment plant.

    b) Design a circular sewage sedimentation tank for a town having population of 40,000. The average water demand is 140 lpcd. Assume that 70% water reaches at the treatment unit and the maximum demand is 2.7 times the average demand. **7**

7. a) Write short note on sewage forming. **7**

    b) Draw a sketch of a sludge digester & explain it's working in brief. **7**

OR

8. a) With the help of neat sketch, explain the activated sludge process. **7**

    b) Write notes on: **any two.** **7**
    i) Sludge index.
    ii) Comparison between trickling filter & (ASP) Activated Sludge Process.
    iii) Any gen sag curve.
    iv) MLSS concentration in aeration tank.

9. a) Design a septic tank for 200 population colony with the following data. **7**
    i) Water supply-140 litre/ head/ day
    ii) L/B ratio – 2
    iii) Desludging period – 1 year.
        Illustrate your design with neat sketch.

    b) Write note on **any two.** **7**
    i) Biogas recovery.   ii) Imhoff tank
    iii) Soak pit.

OR

10. a) Explain in brief **any one** types of privies used in rural area. **7**

    b) Write short note on neutralization and adsorption in industrial waste water treatment. **7**

11. a) Classify various types and sources of air pollution. **6**

    b) Explain the meteorological factors influencing the air pollution. **7**

OR

12. a) Write note on sources and classification of air pollution. **6**

    b) Write notes on **any two:-** **7**
    1) Causes of air pollution.
    2) Air pollution control device. (any two)
    3) Effects of air pollution on human beings and animals.

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