

2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER REGULAR EXAMINATIONS

ENGINEERING GEOLOGY
(CIVIL ENGINEERING)

NOVEMBER 2005

TIME: 3 HOUR
MARK: 80**ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS**

1. (a) Draw an hourly variation curve for demand of water for a typical Indian city and explain its significance.
- (b) What are indicator organisms? Discuss the significance of B-Coli test for drinking water.
2. (a) A distribution main is tapped at a point where R.L. is 30m and where pressure is 12m head. The service pipe is 60m long and supplies water to 12 occupants at an average rate of 135 LPCD. The hourly variation factor is given as 4. Calculate the size of the supply main if residual head at the top outlet having R.L. of 33m is not to fall 1.5m. use the formula $V = 835 \frac{m^2}{3s^{1/2}}$
- (b) How is the capacity of a distribution reservoir determined?
3. Why is the knowledge of storm sewage necessary? How is storm sewage Computed? Describe the factors affecting the quantity of storm sewage.
4. (a) Explain the difference between the dilution process if the waste water effluents are disposed of in a lake or in a sea.
- (b) Explain clearly the methods, problems and limitation of land disposal of sewa.
5. (a) Explain the main objectives of treatment of water used for domestic purposes.
- (b) What is meant by clari-flocculation?
6. (a) Explain with neat sketch the details of perforated pipe under drains.
- (b) A filter unit of size 4mx8m. After filtering 8500 m³ in 24 hour period, the filter is back-washed at the rate of 10 l/m²/sec for 10 minutes. Compute the average filtration rate, quantity and percentage of treated water used in washing and the ate of wash water flow in each trough. The unit has 4 troughs.
7. Explain the construction and working of a trickling filter with a neat sketch.
8. (a) What are the properties and quantity of sludge obtained from various sewage treatment units.
- (b) Why is it necessary to treat sewage sludge? What is the process of anaerobic sludge digestion?