

B.Tech III Year II Semester (R13) Regular Examinations May/June 2016

**ENVIRONMENTAL ENGINEERING**

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) List out factors affecting the per capita demand.
  - (b) What are the impurities present in water?
  - (c) State different types of Coagulants used in water treatment.
  - (d) Write short note on the following: (i) Scour valve. (ii) Check valve.
  - (e) Differentiate between Sewer and sewerage.
  - (f) What are the characteristics of waste water?
  - (g) Draw a lay out a waste water treatment unit.
  - (h) What is the necessity of sludge digestion?
  - (i) State the term solid waste and list out various types of solid wastes.
  - (j) Classify the various types of air pollutants.

**PART – B**  
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 (a) What are the important points to be considered for protected water supply systems?  
(b) Explain the design period and factors affecting the design period.

**OR**

- 3 (a) Describe the various methods of population forecast and explain any one of them.  
(b) What are the usual types of waterborne diseases? Enumerate the bacteria responsible for them.

**UNIT – II**

- 4 (a) What is sedimentation?  
(b) Explain different types of sedimentation tanks.  
(c) Differentiate between slow and rapid sand filters.

**OR**

- 5 (a) State the various layout of water distribution systems.  
(b) Explain about preventive measures against waste water.

**UNIT – III**

- 6 (a) Describe the classification of sewerage systems.  
(b) What are the factors to be considered before making selection for the material for sewers?

**OR**

- 7 (a) What is meant by time of concentration? What is its importance in the design of storm water sewers?  
(b) Define the term B.O.D.  
(c) Determine ultimate B.O.D for a sewage having 5-day B.O.D at 20°C as 200 p.p.m. Assume  $R_{20} = 0.1$  per day.

**UNIT – IV**

- 8 (a) Describe about skimming tanks and design aspects.  
(b) What is a trickling filter? State its types.

**OR**

- 9 (a) Enumerate various method of sludge disposal.  
(b) What is septic tank? And explain the design aspects of a septic tank.

**UNIT – V**

- 10 (a) Discuss in briefly about various methods of disposal of refuse.  
(b) Explain the various engineering systems for solid waste management.

**OR**

- 11 (a) Classify various categories of air pollution.  
(b) State permissible limits of noise pollution.

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