

**B.TECH. SEM -VI (CIVIL ) 2014 COURSE (CBCS) : WINTER -  
2017**

**SUBJECT: ENVIRONMENTAL ENGINEERING -I**

Day: **Tuesday**  
Date: **21/11/2017**

**W-2017-2183**

Time: **10.00 AM TO 01.00 PM**  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat diagrams **WHEREVER** necessary.

**Q.1** Draw a typical layout of water treatment plant? Give function of each unit. **(10)**

**OR**

**Q.1** List and state any five characteristics of drinking water as per BIS 10500:2012. **(10)**

**Q.2** State and explain factors affecting flocculation process. Write the classification of sedimentation tank and draw schematic sketch of any one type and write its working principle. **(10)**

**OR**

**Q.2** Design a tube settler module of square cross- section with following data: **(10)**

- i) Average output required from tape settler = 295m<sup>3</sup>/hr.
- ii) Loss of water in desludging = 2% of output required.
- iii) C/S of square tubes = 50 mm x 50 mm
- iv) Length of tubes = 1m
- v) Angle of inclination of tube = 60<sup>0</sup>C
- vi) Settling velocity of the particle = 115 m/day
- vii) Kinematic viscosity of water = 1.007 x 10<sup>-6</sup> m<sup>2</sup>/sec

**Q.3** With neat sketch explain back washing process of rapid sand gravity filter. **(10)**

**OR**

- Q.3** a) Write difference between rapid sand filter and slow sand filter. **(05)**  
b) Draw a schematic sketch of slow sand filter. **(05)**

**Q.4** Give the classification of air pollutants and write one effect of each on human health, vegetation and property. **(10)**

**OR**

**Q.4** With neat sketch explain wet collectors and fabric filters. **(10)**

- Q.5** a) Explain composting process. **(05)**  
b) Write working principle of landfill bioreactor and draw its schematic sketch. **(05)**

**OR**

- Q.5** a) Explain hazardous waste management with example. **(05)**  
b) Write importance of landfill remediation and explain any one method. **(05)**

- Q.6** a) Explain environmental management system. **(05)**  
b) Explain environmental audit. **(05)**

**OR**

- Q.6** a) Define environmental impact assessment and write its objectives. **(05)**  
b) Write objectives of Air Act and Water Act. **(05)**