

Total No. of Questions :10]

SEAT No. :

**P3235**

**[5670] -501**

[Total No. of Pages :2

**B.E. (Civil)**

**ENVIRONMENTAL ENGINEERING-II**  
**(2015 Pattern) (Semester-I) (EndSem.) (401001)**

*Time :2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, and Q.9 or Q. 10.*
- 2) *Figures to the right indicates full marks.*
- 3) *Draw neat figures wherever necessary.*
- 4) *Assume any missing data if necessary.*
- 5) *Use of scientific calculator is allowed.*

**Q1) a)** Explain various factors responsible for self-purification of polluted river. **[5]**

b) Discuss the effect of change of life style on sewage quality. Also write the typical characteristics of domestic sewage. **[5]**

OR

**Q2) a)** Discuss the river classification in per MEF. **[5]**

b) What is DO deficit? Explain oxygen sag curve. **[5]**

**Q3) a)** How the following sewage treatment units helping to treat the waste water?

i) Screens

ii) Grit chamber

iii) Primary sedimentation tank

b) What do you understand by trickling filter? Draw a neat sketch of trickling filter. **[2+3]**

OR

**Q4) a)** What is the sludge bulking? Explain the control measures for the same. **[2+3]**

b) Draw and explain porcess flow diagram for sewage treatment. **[2+3]**

*P.T.O.*

- Q5)** a) Discuss the phytoremediation technology for wastewater treatment. Also discuss the advantages and limitations of this process. [4+2+2]  
b) Write working principle: draw a schematic sketch and application of root zone cleaning system for wastewater treatment. [4+2+2]

OR

- Q6)** a) Explain the algae bacterial symbiosis in oxidation ponds. Discuss the advantages and limitations of this process. [4+2+2]  
b) Explain the working principle and design criteria of aerated lagoons. [4+4]

- Q7)** a) Explain working principle and application of MBR and FMBR. [4+4]  
b) Explain any two methods of sludge disposal with advantages disadvantages and application. [4+4]

OR

- Q8)** a) Explain working principle of package sewage treatment plant, write its advantages and disadvantages. [3+3+2]  
b) Draw a neat sketch of up flow anaerobic sludge blanket (UASB) reactor. Explain the principle of working and comment on its suitability for treatment of industrial waste water. [2+3+3]

- Q9)** a) Give in tabular form the characteristics of combined effluent from a sugar industry. [4]  
b) Draw and explain units of treating dairy wastewater. [6]  
c) Explain in brief primary and secondary treatment process adopted for treating industrial wastewater. [4+4]

OR

- Q10)** a) Explain the principle of working and need of the following treatment units [9]  
i) Equalization  
ii) Neutralization.  
b) State the sources and characteristics of Distillery wastewater and draw suitable flow diagram for its treatment. [9]

