

SUBJECT CODE NO:- P-16
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(CIVIL) Examination May/June 2017
Environmental Engineering-II
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1) Question No.1 of Section A and Question No.6 of Section B are compulsory.
 - 2) Answer any two Questions among the remaining Questions (i.e. 2 to 5) of Section A and any two questions i.e.(7 to 10) of Section B
 - 3) Assume suitable data. Mention it clearly

Section A

- Q.1 Answer the following Questions 10
- a) Define Sewerage System? List out the components of it?
 - b) State the Necessity of waste water characterization?
 - c) State the advantage of Egg-shaped sewer section
 - d) The BOD of sewage incubated for one day at 30°C has been found to be 110mg/L. What will be 5 days 20°C BOD. Assume $K_{(20)} = 0.1/d$.
 - e) Differentiate between unit operation and unit process in waste water.
- Q.2 a) List the information to be collected while planning for sewerage systems. How will you use the corrected information? 07
- b) Determine the size of a circular sewer for a discharge of 500 l/s running half full $S=0.0001$, $N=0.015$ 08
- Q.3 a) State where manholes used in sewerage system? Explain working with Neat Sketch 07
- b) Determine the BOD load in kg/day in the sewage from a town supplied with 10m/d of water assuming that 60% of the water supplied is returned as waste water with a BOD of 280 mg/lit 08
- Q.4 a) State importance of analysis of sewage and Explain the precautions to be taken during collection of sample. 07
- b) Explain stream standard and effluent standard 08
- Q.5 Write Short Notes (any three) 15
- a) Self-cleaning and Non-scouring Velocity
 - b) Sewer appertences
 - c) COD
 - d) Sludge disposal method

Section B

- Q.6 Answer the following Questions(Any five) 10
- a) Classification of solids present in Sewage
 - b) Waste Stabilization pond are applicable for sewage management in rural areas only. Comments on this statement and justify your comment.
 - c) State objective and functioning principal of Secondary treatment unit.
 - d) Difference between Oxidation pond and oxidation ditch
 - e) State the necessity of velocity control devices in grit chamber. Name the devices in grit chamber
 - f) What is sedimentation?

- Q.7 a) Calculate the diameter required for single stage TF which is to yield effluent BOD of 20 mg/lit when 08
treating settled domestic sewage of BOD 120 mg/lit, Waste water flow is 2200m³/day and
recirculation discharge is 4000 m³/day. Depth of tank is 1.5m
b) Explain working of “Contact Stabilization process of activated sludge method. 07
- Q.8 a) Population of town is 20,000 with water supply of 150 lpcd. BOD of waste water is 150 mg/lit. 08
Design the most suitable waste water treatment system without power to the town.
b) Explain Trickling filter with neat sketch 07
- Q.9 a) Explain aerated lagoons – principle, advantages and disadvantages 07
b) What is solid waste? Explain Disposal of Municipal and industrial solid waste 08
- Q.10 Write Short Note (any three) 15
a) UASBR
b) Grit Chamber
c) Sludge digestion
d) Nitrogen Removal