

Printed Pages – 3

Roll No. :

320713(20)

B. E. (Seventh Semester) Examination, 2020

APR-MAY

(Old Scheme)

(Civil Engg. Branch)

ENVIRONMENTAL ENGINEERING–II

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of all questions is compulsory and carries 2 marks. Attempt any two part from rest and carries 7 marks. Draw neat sketches wherever required.

1. (a) What you mean by combined sewage flow?
- (b) What is drop manhole? Draw neat sketch of it.
- (c) Give the points of difference between separate partially separate and combine system of sanitation.

320713(20)

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[2]

- (d) Calculate the diameter and discharge of circular sewer laid at a slope of 1 in 400 when it running half full and with velocity of 1.9m/s. (n in Manning's formula = 0.012)
2. (a) What is aerobic and anaerobic c process?
- (b) The 5 day 30°C BOD of sewage sample is 110 mg/l. Calculate it's 5 day BOD at 20°C. Assume the deoxygenation constant at 20°C C, K_{20} as 0.1.
- (c) Write short note on oxidation pond.
- (d) Draw typical process flow diagram of activated sewage treatment plant.
3. (a) What you mean by attached growth and suspended growth process?
- (b) Determine the size of high rate trickling filter for following data :
- Sewage flow = 45 MLD
- Recirculation ratio = 1.5
- BOD of raw sewage = 230 mg/l
- BOD removal of primary clarifier = 30%
- Final effluent BOD desire = 30 mg/l

320713(20)

[3]

- (c) Write short note on diffused aeration.
- (d) Explain in brief HRT and volumetric BOD loading.
4. (a) What is self purification of stream?
- (b) Write short notes on :
- (i) Sludge digestion
- (ii) Sludge drying beds
- (c) Draw and labelled treatment flow diagram of wastewater from dyeing and printing industry.
- (d) What are the factors affecting self purification process.
5. (a) What is 3R in solid waste management?
- (b) Write short note on collection and conveyance of solid wastes in an average Indian city.
- (c) Give a briefl account on sanitary landfill with neat labelled sketch.
- (d) Write a short notes : Incineration and Composting.

10]

320713(20)