Roll No.

24381

B. Tech. (Civil) 6th Semester Examination – May, 2015

SEWERAGE & SEWAGE TREATMENT

Paper: CE-308-F

Time: Three Hours] [Maximum Marks: 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note: (i) Question No. 1 is compulsory.

- (ii) Each question carries equal mark. (20 marks).
- (iii) Students have to attempt 5 questions in total at least one question from each section.
- (iv) Use of IS 456-2000 is allowed.
- (v) Assume suitable data if missing.
- **1.** Write short notes on the following:

 $10 \times 2 = 20$

- (i) Combined and Separate system of drainage.
- (ii) Catch pits.

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P. T. O.



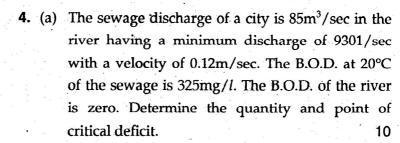
- (iii) Manhole and drop manhole
- (iv) One pipe system of plumbing
- (v) Intercepting tanks
- (vi) BOD/ COD ratio
- (vii) Girt removal unit
- (viii) Oxidation ditches
- (ix) Effect of noise
- (x) Air pollution controls

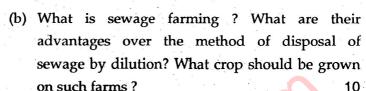
SECTION - A

- 2. (a) What are the different kinds of pipes used in sewerage works? Compare their advantage and disadvantages. Find out the velocity and discharge of a stoneware pipe flowing full of 0.5m diameter laid in a gradient of 1:300.
 - (b) What precaution would you take in the design and construction of sewers so that their maintenance would be simple and easy?
- 3. (a) Why it is necessary to provide 'ventilation' of the house drain?
 - (b) Differentiate between single pipe and single stack plumbing system.

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SECTION - B





- 5. (a) There is sewage sludge with volume containing certain moisture content p₁ %. What will be the volume of this sludge if its moisture content is reduced to p/2 %.
 - (b) What are the factors effecting sludge digestion?Discuss their control also.

SECTION - C

- 6. With the aid of sketches, describe the principles involved in the design and construction of the following:
 20
 - (a) Grit chamber
 - (b) Percolating filter

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P. T. O.

7. Design an Imhoff tank to treat the sewage from a small town with 30,000 population, assuming that the suspended solids in the influent sewage are 200ppm. Water content of sludge is 97%. Design the tank for three month sludge storage. Rate of sewage is 137litre per head per day.



- **8.** (a) Explain in brief the major factors and actions that may help in noise abatment in a modern society.
 - (b) Differentiate between continuous noise, intermittent noise, and impulse noise.
- 9. What is the effect of air pollution in the environment?How to disperse the air pollution in the environment?Explain.

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