Reg. No. :

Question Paper Code: 36103

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Sixth Semester

Civil Engineering

01UCE603 - WASTE WATER ENGINEERING

(Regulation 2013)

Duration: 1:15hrs   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Sewage treatment works are normally designed for a design period of

    (a) 40-50 years   (b) 30-40 years

    (c) 15-20 years   (d) 5-10 years

2. Traps
        (a) Are water seals which prevent the entry of foul gases
        (b) Are used to trap the rats entering sewers
        (c) Aissolve the foul gases
        (d)Create syphonic action to increase the quick disposal of sewerage.

3. The detention period for plain sedimentation water tanks, is usually

    (a) 16 to 24 hours   (b) 8 to 16 hours   (c)   4 to 8 hours   (d)   24 to 36 hours

4. To facilitate maintenance of uniform flow rate in the treatment units_____ is
    used
        (a) Equalization   (b) Skimming Tanks   (c) Flocculation   (d) Pre-aeration

5. When the bacterial growth rate and decay rate are same there will be no net increase or decrease in mass of microorganism. This phase is referred as

    (a) Log growth phase   (b) Declining growth phase
    (c) Stationary phase   (d) Endogenous growth phase

6. If the sewage is added at more than one point along the aeration channel, the process is called

    (a) Conventional aeration   (b) Step aeration
    (c) Tapered Aeration   (d) Completely mixed

7. Dilution method of disposing off sewage, is not preferred to

    (a) when sewage is fresh
    (b) when diluting water is used for water supply near the point of sewage disposed
    (c) when diluting water has high dissolved oxygen content
    (d) when the diluting water is having flow currents

8. The self-cleansing velocity of water flowing through pipe lines, is

    (a) 2 metres/sec   (b) 1 metre/sec   (c) 0.5 metre/sec   (d) 0.25 metre/sec

9. The digested sludge from septic tanks, is removed after a maximum period of

    (a) 4years   (b) 3years   (c) 6years   (d) 5years

10. The phenomena by which soil is clogging with sewage matter is called

    (a) sewage farming   (b) sewage sickness
    sewage bulking   (d) trickling filter

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11.   Discuss the factors involved in the estimation of quantity of sewage.   (8)

12.   Design the dimensions of a septic tank for small colony of 150 persons provided with an assured water supply from the municipal head works at a rate of 120 lit/c/day. Assume any data, you may need.   (8)

13.   The sewage is flowing @ 4.5 million liters per day from a primary clarifier to a standard rate trick long filter. The 5-day BOD of the influent is 160 mg/l. The value of the adopted organic loading is to be 160 gm / m^3/ day and surface loading 2000 lit/m^2/day. Determine the volume of the filter and its depth. Also calculate the efficiency of this filter unit.   (8)

36103

14. Enumerate the two general methods adopted for sewage disposal and explaining the conditions favourable for their adoption. (8)

15. Describe the various methods of disposal of dewatered sludge, highlighting their suitability, merits and demerits. (8)

36103