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Question Paper Code: 46103

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Sixth Semester

Civil Engineering

14UCE603- WASTE WATER ENGINEERING

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

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
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- 9. The digested sludge from septic tanks, is removed after a maximum period of
 (a) 4 years
 (b) 3 years
 (c) 6 years
 (d) 5 years
- 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 (5 x 2 = 10 Marks)

- 11. What are the functions involved in the chemical unit processes.
- 12. State the purpose of using the skimming tanks.
- 13. Define recirculation ratio.
- 14. Define the term "Dilution Factor".
- 15. What is meant by "conditioning"?

PART - C (5 x
$$16 = 80$$
 Marks)

16. (a) (i) Write in detail about the characteristics and composition of sewage.(8)(ii) List the effects of sewage on environment.(8)

Or

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(b) (i)	List the various measures that should be considered for corrosion of sewers.	(8)
(ii)	Compare the one pipe and two pipe plumbing systems.	(8)

17. (a) (i) Write the objectives of treatment processes. What are the treatment processes	,
explain in detail?	(8)
(ii) Explain the role of Screen Chamber in Sewage treatment plant.	(8)

Or

(b) (i)What is meant by sedimentation tank in a treatment system? Explain in detail		
various types of sedimentation tank with neat sketches.	(10)	
(ii)Tabulate the advantages and disadvantages of ASP and Trickling Filters.	(6)	
18. (a) Describe the activated sludge process with a flowchart.	(16)	
Or		
(b) (i)Describe UASB and its treatment process ?	(10)	

- (ii)Enumerate the advantages & disadvantages of oxidation ditch. (6)
- 19. (a) State the objectives of sewage disposal and list the methods of disposal and explain The same. (16)

Or

- (b) What is sewage farming? What are the advantages over the method of disposal of sewage by dilution? (16)
- 20. (a) (i)Mention the need for sludge characterization and thickening. (8)
 (ii)Discuss the need for sludge dewatering and explain the various sludge dewatering methods. (8)

Or

- (b) (i) Describe in detail about the sludge thickening process. (8)
 - (ii) Write the various disposal methods available to dispose the dewatered (8) Sludge.



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