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Question Paper Code: 46103

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. The pH value of fresh sewage is usually
 - (a) Equal to 7
 - (b) More than 7
 - (c) Less than 7
 - (d) To zero
2. Traps
 - (a) Are water seals which prevent the entry of foul gases
 - (b) Are used to trap the rats entering sewers
 - (c) Dissolve 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. Corrosion in pipes will be less in
 - (a) Plastic pipes
 - (b) iron pipes
 - (c) both (a) and (b)
 - (d) none of these
5. The detention time in grit chamber is equal to
 - (a) 20 sec
 - (b) 1 min
 - (c) 40-60 sec
 - (d) 30 min

6. Recirculation ratio is equal to
- (a) sewage recirculated/volume of sewage
 - (b) refuse recirculated/volume of sewage
 - (c) both (a) and (b)
 - (d) none of these
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. Biogas is normally composed of
- (a) 65% methane and 35% CO₂
 - (b) 35% methane and 65% CO₂
 - (c) 40% methane and 60% CO₂
 - (d) none of these
10. The hydraulic loading of conventional filters is
- (a) 66-88 million litres/ hectare/day
 - (b) 22-44 million litres/hectare/day
 - (c) both (a) and (b)
 - (d) none of these

PART - B (5 x 2 = 10 Marks)

11. Classify sewage systems?
12. Write the objective of sewage treatment.
13. Define recirculation ratio.
14. Define the term "Dilution Factor".
15. Illustrate Population equivalent.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) What are the various sewer appurtenances used? Explain anyone with a neat sketch. (10)
- (ii) Explain the steps involved in laying of sewer under various conditions. (6)

Or

- (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 short note on screening process in waste water treatment. (10)
- (ii) How will you dispose the materials separated by screening? (6)
- Or
- (b) (i) List and explain the various types of Screens. (8)
- (ii) Illustrate Septic tank. (8)
18. (a) Describe the activated sludge process with a flowchart. (16)
- Or
- (b) Write the comparison between conventional and high rate trickling filter. (16)
19. (a) State the objectives of sewage disposal and list the methods of disposal and explain The same. (16)
- Or
- (b) Draw a typical oxygen sag curve and explain its meaning. (16)
20. (a) (i) Explain the mechanism of anaerobic digestion. (8)
- (ii) Why is it necessary to treat the sludge? (8)
- Or
- (b) (i) Describe in detail about the sludge thickening process. (8)
- (ii) Write the various disposal methods available to dispose the dewatered Sludge. (8)
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