A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 99910

B.E./B.Tech. DEGREE EXAMINATION, DEC 2021

Elective

Chemical Engineering

19UCH910 - WASTE WATER TREATMENT& RECYCLING

(Regulation 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The surface water quality is affected by _____ and infiltration from rainfall. CO1- R

   (a) Precipitation (b) Run off (c) Wetlands (d) Farming

2. What percentage of solids does wastewater contain? CO1- R

   (a) 0.5% (b) 5% (c) 0.1% (d) 1%

3. Which of the following requires aesthetically pleasant water? CO1- R

   (a) Domestic use (b) Industrial use (c) Irrigation (d) Aquaculture

4. _____ represents the heavier inert matter in wastewater. CO1- U

   (a) Debris (b) Waste (c) Screens (d) Grit

5. What is the first step in the sewage treatment process? CO1- R

   (a) Dewatering (b) Thickening (c) Phosphorus recovery (d) Digestion

6. Which of the following methods are used in rural communities? CO1- R

   (a) Aerobic digestion (b) Mechanical dewatering

   (c) Dewatering (d) Composting

7. _____ Devices remove materials which would damage equipment or interfere with a process. CO1- R

   (a) Grit (b) Screening (c) Oxidation (d) Reduction

8. What is the percentage of dry solids assumed for the sludge at the outlet of a centrifuge? CO1- R

(a) 10-15% (b) 1-3% (c) 4-8% (d) 9-12%

9. In rotating biological contractors, what percent of corrugated plastic discs are submerged? CO1- R

(a) 20 (b) 50 (c) 80 (d) 40

10. What is the intermediate zone composed of in aerobic-anaerobic ponds? CO1- U

(a) Algae (b) Aerobic bacteria (c) Facultative bacteria (d) Organic solids

PART – B (5 x 2= 10 Marks)

11. What is waste? and list out the types of waste CO1- R

12. Compare Unit operation and unit process. CO1- R

13. What are the various advance treatment for waste water. CO1- R

14. List out the characteristics of sludge. CO1- R

15. List out the components of waste water flows CO1- R

PART – C (5 x 16= 80 Marks)

16. (a) Illustrate in detail about Recycle and Reuse. CO2- App (16)

Or

(b) Explain different types of Industrial waste. CO2- App (16)

17. (a) Sketch out any two types of Chemical Treatment CO2- App (16)

Or

(b) Write short notes on ASP & Trickling Filter. CO2- App (16)

18. (a) Illustrate in detail about technology in advance waste water treatment CO3- Ana (16)

Or

(b) Illustrate in detail about SBR. CO3- Ana (16)

19. (a) Sketch out the sludge treatment plant. CO2- App (16)

Or

(b) Write short notes on ASP & Trickling Filter.. CO2- App (16)

20. (a) Explain the various components of waste water flows. CO1- U (16)

Or

(b) Explain the different types of reactor used in waste water treatment. CO1- U (16)