

MRT 381-3 Water Treatment Methods



Total number of questions: 25

Answer all the questions very briefly

Maximum 50 marks

All the questions carry equal marks

PART- A

1. What is the general value of G for rapid mixer design?
2. What is the general surface loading rate design value of slow sand filters?
3. Name three basic types of water stabilization ponds.
4. What is the optimum horizontal velocity of a grit channel?
5. Explain the importance of maintaining the above velocity.
6. What is the standard filtration rate for a rapid sand filter?
7. What is the general design range for hydraulic retention time (HRT) of sedimentation process?
8. What are the three steps followed in a jar test experiment in a water treatment plant laboratory?
9. What is the optimum pH range of Aluminum Sulphate for better coagulation?
10. What are the five main stages used in a full scale wastewater treatment process?
11. What is the expected range of residual chlorine (RCl) concentration to be maintained in a distribution system?
12. What are the four main components of a wetland system?
13. Explain the function of coagulant aids.
14. What does UASB stand for?
15. What are the four basic zones of a sedimentation basin?
16. What are the three base materials (raw materials) for activated carbon production?
17. What are the two basic forms of activated carbon available in the market?
18. Which is the best form of activated carbon to be used in temporary contamination?

19. What is the most important parameter to be considered in wastewater treatment process?
20. What is the mostly considered key parameter in water treatment process design?
21. What does MLVSS stand for?
22. What are the two main types of wastewater found in domestic establishments?
23. What is the maximum residual alum concentration that should be maintained in treated water?
24. What are the four main factors affecting the efficiency of coagulation process?
25. What is the minimum retention time to be maintained in clear water reservoir?

PART -B

Total number of questions: 10
Answer only 05 questions in detail
Maximum 50 marks
All the questions carry equal marks

1. Describe the importance of pH correction in coagulation process.
2. Indicate all possible chemical additions within a conventional water treatment facility in a logical order.
3. Explain differences between colour and turbidity.
4. Explain the operational mechanism of electro-dialysis process in water treatment with appropriate sketches.
5. Describe the importance of having correct post chlorination concentration.
6. Explain the activated sludge process with minimum three examples?
7. Discuss briefly about the importance of screening process in water treatment.
8. What are the four basic types of membrane technologies applied in water treatment?
9. Discuss the possible groundwater contaminants in Sri Lanka.
10. What is CKDu? What are the possible causes?