

10168 : Free Elective-II : Water Technology : 6 FECH 05

P. Pages : 2

Time : Three Hours

**AW - 3251**

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Diagrams and chemical equations should be given wherever necessary.
 5. Illustrate your answer necessary with the help of neat sketches.
 6. Discuss the reaction, mechanism wherever necessary.
 7. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) Describe the general effluent treatment scheme with flow chart. **8**
b) Discuss the limitations of Conventional wastewater treatments. **6**

OR

2. a) How the particulate matter is removed from water? Explain the sand filtration. **10**
b) Explain the theory of flocculation. **4**
3. a) What is reverse osmosis? Explain its salient Features. **6**
b) What are the different methods of removal of iron from wastewater? Explain in each brief. **7**

OR

4. Discuss about the following reactors. **13**
i) Trickling filter.
ii) Rotating Disc fixed film biological reactor.
5. a) Why is it necessary to have nutrient control in effluents? Explain. **7**
b) What are the various physical and chemical methods for removal of nitrogen from wastewater? Explain in brief. **6**

OR

6. Discuss the importance of activated sludge process in biological treatment of wastewater. **13**

SECTION - B

7. a) What are the novel methods of aeration? **6**

- b) What are the different methods of removing heavy metals from wastewater? Explain in short. 7

OR

8. a) Explain the use and operation of rotating Geological Contactor in wastewater treatment. 7
- b) How is centrifugation carried out? Explain its applications with suitable examples. 6
9. a) What are the various desired properties of disinfectants in wastewater treatment? 4
- b) Discuss about the following points: 10
- i) Chlorination chemistry.
- ii) Chlorination by products.

OR

10. a) How can you remove pesticides by activated carbon filters? 6
- b) Explain in detail Reverse Osmosis. 8
11. Give the details of the following filtration methods for high quality effluents. 13
- i) Gravity filters ii) Rapid sand filters
- iii) Pressure filters iv) Vacuum filters

OR

12. a) How biosolids are treated? Explain in details with suitable example. 7
- b) Explain the phenomena of soil conditionity and fertilizing with suitable example. 6
