

NRT/KS/19/2192

Bachelor of Science (B.Sc.) Semester—VI Examination

ICH-602 : INDUSTRIAL CHEMISTRY

(Waste Recycling)

Optional Paper—2

Time : Three Hours]

[Maximum Marks : 50

- N.B. :—** (1) All **FIVE** questions are compulsory and carry equal marks.
(2) Write chemical equations and draw diagrams wherever necessary.

1. (A) Give and explain the differences in industrial and domestic waste water. 5
(B) Describe at least two methods of solid waste disposal. 5

OR

- (C) Discuss chemical methods used in treatment of waste water . 2½
(D) Write a note on agricultural waste. 2½
(E) Explain fuel pelletization from solid waste. 2½
(F) Mention the characteristics of domestic solid waste. 2½
2. (A) Explain in detail water management practice in thermal power plant. 5
(B) Give an account of reuse of cooling water in industries. 5

OR

- (C) Write a note on treatment of waste water from refineries. 2½
(D) Describe in brief unit operations during treatment of sewage. 2½
(E) Mention any two methods used in waste water treatment from thermal power plant. 2½
(F) How are liquid waste characterized ? 2½
3. (A) Explain the use of activated carbon during recycle and reuse of waste water. 5
(B) Explain reverse osmosis method for removal of dissolved solid after secondary waste water treatment. 5

OR

- (C) What is electrodialysis ? Mention any two important uses of it in recovery of compounds. 2½
(D) What is filtration ? Give the advantages and disadvantages of slow and gravity filter. 2½
(E) Write a note on ion exchange process. 2½
(F) Explain the biological process for the treatment of waste water. 2½
4. (A) Give the characteristics of industrial waste water from textile and fertilizer industry. 5
(B) Explain the recovery of water from a paper mill waste for its reuse. 5

OR

- (C) Give characteristics of solid and liquid wastes from sugar mill. 2½
(D) Explain economics of recycling of waste. 2½
(E) What are the recoverable materials from iron and steel plant ? 2½
(F) How are oil and ammonia removed from the waste from fertilizer plant ? 2½

5. Attempt any **TEN** of the following :

- (i) What is incineration ?
- (ii) Define soil conditioning.
- (iii) What do you mean by waste elimination ?
- (iv) What is BOD_5 ?
- (v) Name any two processes which affect the DO contents in the water.
- (vi) Give any two function of aerator.
- (vii) What is coagulation ?
- (viii) What is the principle used in removal of colour by activated carbon from waste water ?
- (ix) Give name of resin used in ion exchange process.
- (x) Mention the pollutants from heavy chemical industrial waste water.
- (xi) What are oils and fats ?
- (xii) Name the important compounds present in tanneries waste.

1×10=10