B.Sc. Part–II (Semester–IV) Examination

4S : INDUSTRIAL CHEMISTRY (R/V)

(Material Science and Industrial Pollution)

Time—Three Hours] [Maximum Marks—80

Note :—(1) Draw well labelled diagrams wherever necessary.

(2) Question No. **1** is compulsory and carries **8** marks.

(3) Remaining **SIX** questions carry **12** marks each.

(4) Use of Scientific Calculator is allowed.

1. (a) Fill in the blanks :

(i) Thermoplastic Polymer _____ on heating.

(ii) Long form of WHO is _____.

(iii) Ceramics can be properly defined as _____ non-metallic materials.

(iv) Temporary hardness can be removed by _____ of water. 2

(b) Choose the appropriate answer from the given alternatives in each sub-question :

(i) Industrial discharges give _____ to the receiving water.

(a) Colour (b) Odour

(c) Turbidity (d) All of these

(ii) Dry Process is used for manufacturing of _____.

(a) Urea (b) Cement

(c) Paper (d) Sugar

(iii) _____ glass is used for making crucibles.

(a) Quartz or Silica (b) Window glass

(c) Flint glass (d) None

(iv) Which is considered as secondary air pollutant ?

(a) Carbon monoxide

(b) Nitrous oxide

(c) Ozone

(d) Oxygen. 2

(c) Answer the following questions in **one** sentence :

(i) Define alkalinity.

(ii) What is sterilization ?

(iii) What is thermoplastic polymer ?

(iv) What are primary air pollutants ? 4

2. (a) What are Ceramics ? Give the types of Ceramics and its applications. 4

(b) Explain the manufacturing of high alumina brick. 4

(c) Discuss the classification of glass. 4

OR

11. (p) Explain trickling filter method for waste water treatment. 4

(q) Discuss :

(i) Ion-exchange method

(ii) Electrolysis for water treatment. 6

(r) Define waste water treatment. 2

12. (a) Discuss the classification of air pollutants. 3

(b) Discuss how thermal power plant as a source of air pollution. 4

(c) Explain Greenhouse effect with diagram. 5

OR

13. (p) Explain various sources of noise pollution and its control. 6

(q) How air pollution can be controlled by Electrostatic precipitators ? 6

3. (p) Discuss the raw materials and manufacturing process for Ceramics. 4

(q) Explain the manufacturing of glass with diagram. 4

(r) What is composition and application of soft glass ? 4

4. (a) Explain manufacturing of cement by wet process with flow diagram. 6

(b) Give raw materials and composition of cement. 3

(c) What are the types of cement ? 3

OR

5. (p) Discuss the raw materials used in manufacturing of cement. 4

(q) Give an account of setting and hardening of cement. 4

(r) Explain the procedure for testing the compression of cement. 4

6. (a) Explain the manufacturing of urea formaldehyde resin with its applications. 6

(b) Write in brief about condensation polymerization. 4

(c) Give the uses of Polyester. 2

OR

7. (p) Discuss the complete classification of Polymers. 4

(q) Write in brief about addition Polymerization. 4

(r) Explain the manufacturing process of phenol formaldehyde resin with its uses. 4

8. (a) Define Pollution. Explain water pollution due to paper industry. 6

(b) Explain TDS, COD and BOD as water parameters. 6

OR

9. (p) Explain classification of water and their properties in brief. 6

(q) What are the effects of Organic Pollutants on water quality ? 6

10. (a) Explain aerobic method for water treatment. 3

(b) Discuss :

(i) Evaporation

(ii) Adsorption

(iii) Filtration. 6

(c) Discuss secondary treatment for industrial water. 3

OR