Reg. No. | | | | | | | | | |

ICE 459

II Semester M.Sc. Degree Examination, May 2017
(CBCS Optional Paper)
INDUSTRIAL CHEMISTRY
Industrial Safety, Environmental and Electrochemical Sciences
(Open Elective)

Time : 3 Hours Max. Marks : 70

Note : *1) Answer **any five** questions from Part – **A** and **any five** questions from Part – **B**.*
*2) Figures to the **right** indicate marks.*

PART – A

1. Answer **any five** sub-divisions : **(5×2=10)**

   a) What is OHSAS 18000 ? Explain.

   b) Explain the significance of quality assurance in industries.

   c) What is a Fuel cell ? Mention its uses.

   d) Reason out why COD value is greater than BOD value for given water sample.

   e) Mention the causes and consequences of depletion of ozone layer in the atmosphere.

   f) What are the requirements of a good paint ?

   g) Explain metal finishing.

   h) Define primary cell and secondary cell.

PART – B

2. a) Briefly discuss about the various precautionary steps to be taken in handling toxic chemicals and flammable materials.

   b) Discuss the various safety measures to be taken in laboratories.

   c) Give an account on remote control systems used in industries. **(5+4+3)**

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3. a) Explain the various safety measures involved in transportation and storage of chemicals in the laboratories.

   b) Write notes on :
      i) Ocean dumping of chemical weapons.
      ii) Industrial hygiene. **(6+6)**

4. a) Mention the need for having quality control in industries and explain the variables influencing quality control.

   b) Enumerate the importance of MINAS in quality control.

   c) Write notes on Laws related to quality control. **(5+4+3)**

5. a) Explain the use of ISO 9000, ISO 14000 and ISO 17025 series in maintaining the quality.

   b) With an example, explain how quality control in raw material, process and finished product will help in the production of defect free product in industries. **(6+6)**

6. a) Briefly discuss about the various segments of atmosphere.

   b) Explain the mechanism of formation of photochemical smog in atmosphere.

   c) Write notes on Bhopal gas tragedy. **(5+4+3)**

7. a) Explain the $H_2 - O_2$ fuel cell and its applications.

   b) Briefly explain how reverse osmosis and distillation process in purification of water.

   c) Outline a method for the determination of BOD of a polluted sample of water. **(4+4+4)**

8. a) Give the role of electrochemistry in transportation.

   b) How paints are classified ? Explain with examples.

   c) Explain the concepts involved in electroplating and electro less plating. **(4+4+4)**

9. a) What is corrosion ? Discuss the principle of anodic protection and cathodic protection techniques.

   b) Write notes on :
      i) Global warming
      ii) Secondary treatment of waste water
      iii) Fixing of CO_2. **(6+6)**