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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)

- What is OHSAS 18000 ? Explain.
- Explain the significance of quality assurance in industries.
- What is a Fuel cell ? Mention its uses.
- Reason out why COD value is greater than BOD value for given water sample.
- Mention the causes and consequences of depletion of ozone layer in the atmosphere.
- What are the requirements of a good paint ?
- Explain metal finishing.
- 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. (6+6)
ii) Industrial hygiene.
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)