

**GUJARAT TECHNOLOGICAL UNIVERSITY****DIPLOMA ENGINEERING – SEMESTER – 4(NEW) • EXAMINATION – SUMMER 2018****Subject Code: 3340505****Date: 07-May-2018****Subject Name: Safety And Hazard Management In Chemical Industry****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

- Q.1** Answer any seven out of ten. **14**
1. Define: Safety and Hazard
  2. What is the importance of color code?
  3. Write the full name of ETA and ISO
  4. Define: Accident and Risk.
  5. Write any two examples of respiratory personal protective devices.
  6. Write any two hazardous characteristics of sulfuric acid.
  7. Define: Biological hazard
  8. Enlist various methods for Risk Assessment.
  9. Which fire extinguishers are used for metal-fire?
  10. Write the principle of CO<sub>2</sub> type fire extinguisher.
- Q.2** (a) Justify the sentence "Safety and Productivity cannot be separated, keep them together." **03**
- OR
- (a) Write the importance of Industrial safety. **03**
- (b) Explain fire triangle. **03**
- OR
- (b) Draw a suitability chart for fire classes and fire extinguishers. **03**
- (c) Write hazardous properties of Phosphoric Acid. **04**
- OR
- (c) Write hazardous properties of Chlorine. **04**
- (d) Explain methods used to control chemical hazards. **04**
- OR
- (d) Explain Non-respiratory personal protective devices with examples. **04**
- Q.3** (a) Explain Radioactive hazards in brief. **03**
- OR
- (a) Write the Indian Standards & codes used for safety & health. **03**
- (b) Write the precautions should be taken during handling of hazardous chemicals. **03**
- OR
- (b) Explain: Storage and Transportation of hazardous chemicals. **03**
- (c) Explain in detail: HAZAN **04**
- OR
- (c) Write the scope and methodology of HAZOP. **04**
- (d) Explain: Color codes for pipelines. **04**
- OR
- (d) Classify color codes used in chemical plant. **04**

- Q.4** (a) Explain: FTA giving an example. **03**  
OR  
(a) Explain briefly FMEA. **03**  
(b) Explain prevention of diseases due to chemical effect. **04**  
OR  
(b) Explain about Ventilation and Lighting as engineering control methods for hazard reduction. **04**  
(c) Enlist fire extinguishing methods. Explain principle, construction and working of DCP fire extinguisher with neat sketch. **07**
- Q.5** (a) Explain OHSAS:18001 **04**  
(b) Explain in detail various classes of Fire. **04**  
(c) Classify chemical hazards. **03**  
(d) Justify the sentence “Safety does not come instantly, but should implement it consistently.” **03**

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