

Name:	
Enrolment No:	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, July , 2020**

**Course: Principles of Chemical Process Safety**

**Semester: II**

**Program: M.Tech(Chemical + PD)**

**Course Code: CHPD7011**

**Time 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A(100 marks)-Assignment based questions**  
**Answer all the questions**

S. No.		Marks	CO
Q 1	Discuss and elaborate on Hazard Analysis Methods. Discuss Risk Management Plan.	<b>20</b>	<b>CO3</b>
Q 2	<p>Discuss major accidents around the world. Discuss various chemical plant industrial hygiene methods.</p> <p>Please evaluate what you think from the following case-study:  A worker was sent to collect samples from a process plant at midnight as there was a recent process upset. For a representative sample, flushing of the sampling line was carried out before taking the actual sample. The worker drained the flushing liquid into an open bucket which would then be disposed into a waste pit. When the worker failed to locate the hatch on the pit cover for proper disposal of the liquid, he decided to open the pit cover. While moving the pit cover, the worker knocked over the bucket. Contents from the bucket splashed onto his arms, neck and lower half of his face. The worker suffered from chemical burns as a result of the accident.</p> <p>What are the possible causes and contributing factors? What are recommendations and the learning points?</p>	<b>20</b>	<b>CO1</b>
Q 3	<p>What do you mean by AICHE Code of Conduct and Ethics?</p> <p>Please evaluate what you think from the following case study.  After carrying out a chemical blending operation, a worker felt severe pain in the fingers of his left hand. As the pain did not subside, he was sent to the hospital for treatment and was warded for one day. He was also given a total of 16 days of medical leave. The blending operation involved a highly corrosive substance, hydrofluoric acid(HF). The worker removed his impervious gloves during the blending operation as he thought that the cotton gloves would provide sufficient protection. What are the recommendations and what are the learning points?</p>	<b>20</b>	<b>CO2</b>
Q 4	What do you mean by inherent safety techniques? Elaborate in details	<b>20</b>	<b>CO5</b>

Q 5	Discuss risk assessment. Discuss different types of toxic release and dispersion models.	20	CO4
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