Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2021

Program Name: M.Tech HSE — Semester : III

Course Name : Hazard and Safety Measures in Process Industry — Time : 03 hrs

Course Code : HSFS 8004P — Max. Marks: 100

Instructions :

- All questions are compulsory.
- Your answer must be precise and to the point.

SECTION A

(6 x 5 marks = 30 marks)

S. No.		**Marks**	**CO**
Q.1	How to treat a person affected by H2S?	5	CO1
Q.2	List out any five Confined Space Hazards?	5	CO3
Q.3	What important details a work permits gives?	5	CO2
Q.4	How affected population data play a major role while identifying a hazard?	5	CO2
Q.5	Briefly explain contractors and their role in process safety?	5	CO1
Q.6	How we protect openings when working in confined spaces?	5	CO1
	SECTION B (5x 10 marks = 50 marks)		
Q.7	What procedure you will follow as safety officer during bulk unloading of hazordious chemicals from tanker to tank?	10	CO5
Q.8	Highlight potential results of working without LOTO process. Explain implementation strategy of Lock Out and Tag Out process.	10	CO3
Q.9	Write general leading and lagging indicators which would be applicable to process industries. Also explain active and reactive actions considering a hazardous scenarios.	10	CO2
Q.10	Being owner of an organization, how conducting inspections can benefit the society?	10	CO4
Q.11	Centrifugal & reciprocating pumps are the common types of pumps used in the chemical industry, explain their working principle, applications, advantage & disadvantage over each other.	10	CO2

SECTION-C (1 x 20 marks = 20 marks)			
Q.12	The accident prevention is very important for safe production of dangerous chemical products. High risk industries must include in safety management system, which often only consider occupational safety performance, deeper studies of the process safety management, so that the company can be able to take management actions to reduce the occurrence of a catastrophic accident. i. In order to achieve it, develop a six step by step process safety indicators for petroleum storage terminals and pipelines transporting oil & oil products. The terminals serve as connection between the oil tankers and pipelines, which are appropriate facilities for transferring products of ships to earth. ii. How to choose the most appropriate indicators to the desired installation? iii. Process safety leading indicators versus lagging indicators?	12+4+4	CO5