

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2020

Course: Safety, Health & Environment Management

Semester: VIII

Program: B. Tech-GSE

Time: 03 hrs.

Course Code: ENVO401

Max. Marks: 100

Instructions:

SECTION A

S. No.	Attempt all the questions	30 Marks	CO
Q1.	Expand the following: i. PTW ii. ISO iii. OISD iv. DGMS v. DGFASLI vi. NIHL vii. USC viii. ESP ix. CPR x. PM 2.5/10	10	CO1
Q2.	Define the following; (as per IFA, 1948) i. Occupier ii. Competent Person iii. Power iv. Factory v. Manufacturing Process vi. Adolescent vii. Worker viii. Power ix. Certifying Surgeon x. Factory Inspectorate	20	CO1 & CO2

SECTION B

S. No.	Attempt all the questions	50 Marks	CO
Q3.	List and discuss the safety provisions as per IFA, 1948.	10	CO1
Q4.	Answer the following: a. Enlist and define flammability properties of a liquid. b. Discuss the classification of liquids and petroleum products based on their flammability.	10	CO2

Q5.	Explain the Domino's theory of accident causation along with its limitations.	10	CO2
Q6.	Discuss various types of pollutants and their sources (materials, processes) and their health, safety and environmental consequences in case of oil & gas industries.	10	CO4
Q7.	Describe the operational principles of gravitational settling chambers.	10	CO5
SECTION-C			
S. No	Answer the following.	20 Marks	CO
Q8.	<p><i>Read the following case study and answer the questions following.</i></p> <p>This case study investigates the factors resulting in an electrostatic ignition incident involving toluene, a prolific charge generator filling a metal bucket via gravity fed 0.75" metal pipping. In this scenario, an operator opened a valve to draw toluene into a metal bucket with toluene from an overhead tank by gravity flow at approximately 5 gallons per minute. The operator hung a metal bucket with a wire bail and plastic handle over a globe valve. The plastic handle on the bail isolated the metal bucket from ground. On opening the valve, the operator backed away from the bucket allowing the toluene to flow as he had previously done several times. Within a few moments, the toluene had ignited causing the operator to immediately leave the scene returning with a small fire extinguisher, which proved inadequate to put the fire out. The operator then left the scene returning with a larger fire extinguisher, however by the time he had returned the fire was out of control and he was unable to close the valve to prevent the flow of toluene to the bucket, which was already over flowing. The investigation into the incident outlined that the operator had opened the valve and backed away from the metal bucket. The operator stated "I was just standing there looking at it when it caught fire". As a result, discharge from the operator could be ruled out as a cause of the incident.</p> <p>A. Point out the causes and sequence of occurrence. B. Discuss the preventive and protective measures that could have avoided this occurrence.</p> <p style="text-align: center;">[OR]</p> <p>Discuss the following in respect of "Gulf of Mexico" 2010 –</p> <ol style="list-style-type: none"> 1. Incident Description 2. Sequence of Events 3. Rescue Measures 4. Aftermath 	20 Marks	CO4