


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2022			
Course: Principles of safety management Program: B. Tech. FSE Course Code: HSFS 4012		Semester: VII Time : 03 hrs. Max. Marks: 100	
Instructions:			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q1	Explain the following terms examples a) Near miss b) Lost time injury	4	CO1
Q2	List the 5Es of accident prevention.	4	CO1
Q3	Distinguish between minor accident and major accident with examples	4	CO2
Q4	<i>“Elimination is the least effective form of prevention control”</i> Do you agree with this statement? Justify your answer.	4	CO3
Q5	Choose the best answer from the choices given in brackets. a) The highly flammable gas often found in closed manholes is(Nitrogen, Carbondi oxide, Methane, Nitrous oxide, Ammonia, all of these) b) The permissible level of carbon monoxide in a confined space for an 8-hour period is? (10 PPM, 23.5 PPM, 33.5 PPM, 35 PPM,19.5 PPM) c) Oxygen enriched atmospheres in confined spaces pose a risk of (Fire, Corrosion, Toxic release, asphyxiation, All of these) d) An atmospheric monitoring equipment is being used to measure the concentration of butane in a storage tank shut down for maintenance. What is the percentage of LEL that will make the condition in the tank Immediately Dangerous to Life or Health? (19.5%, 10%, 35%, 20%)	4	CO1
SECTION B (4Qx10M= 40 Marks)			

Q6	<p>Five thousand employees in a process industry work for 300 days a year. The average working hours per day for any employee is 9 hours.</p> <p>The following are the injury statistics of the company of year 2021</p> <p>Number of fatalities reported - 10</p> <p>Ten got injured in leg and taken to hospital, given treatment and returned back in 4 hours.</p> <p>Two got injured in eye due to mis management of the employers, given treatment and returned back in 3 days and the case was not reported.</p> <p>Three workers were infected from COVID 19 and were advised home quarantine.</p> <p>Twelve had an injury in the arm and returned to work after one week.</p> <p>Apart from these there were 17 cases of lost time injury reported.</p> <p>Calculate the frequency rate and the reportable lost time injury incidence rate</p>	10	CO3
Q7	Discuss the significance and requirements of safety policy.	10	CO2
Q8	Explain the use of a plant inspection programme? Who is responsible for carrying out inspections? Prepare an inspection checklist for an electrical substation.	10	CO1
Q9	<p>Write about 5S management system in detail.</p> <p style="text-align: center;">OR</p> <p>Briefly describe any two accident causation theories.</p>	10	CO1
<p>SECTION-C (2Qx20M=40 Marks)</p>			
Q10	<p>Is a confined space and a permit required confined space the same, if not, support your answer with explanations? Illustrate with the help of a decision flowchart how a confined space may be identified as a permit required confine space or not? Are there any hazards associated with having too many people inside a confined space? Justify your answer.</p>	20	CO3
Q11	<p>Prepare a composite work permit for performing blinding of a pipe inside a manhole leading to a sewer line.</p> <p style="text-align: center;">OR</p> <p>A land excavating machine was parked improperly near the resting area at a construction site. The average daily temperature of the site was reported</p>	10+5+5	CO4

	<p>to be 37°C that day. The driver had forgotten to apply the parking brakes due to which the JCB rolled into the parking shed and smashed into the resting area causing serious injury to one worker resting there. Assuming you are in charge of safety at the site,</p> <p>A) how are you are going to respond to this accident</p> <p>B) explain why this accident should be investigated</p> <p>C) what are the different evidences that you will scrutinize to identify the root cause of this accident?</p>		
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