

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Remediation Services and site restoration

Semester: VII

Programme: B.Tech (FSE)

Course Code: FSEG 443

Time: 03 hrs.

Max. Marks: 100

Instructions: Please read all the questions

SECTION A

S. No.		Marks	CO
Q 1	Define Major Accident Hazard Unit as per Indian Legislations?	4	CO1
Q 2	Discuss the term major Accident? Explain the criterion for selection of a Major accident hazard installation?	4	CO2
Q 3	Interpret and compare the criterion for Hazardous chemicals in Indian Legislation and also differentiate the terms LD50 and LC 50? Which rule states about disclosure of information?	4	CO2,C O3
Q 4	Remember the information to be furnished to the concerned authority at the time of a Major Accident?	4	CO2
Q 5	Describe the salient features of major hazard installation. Discuss On site emergency plan? _____ should make the Onsite emergency plan?	4	CO1

SECTION B

Q 6	Illustrate and infer the deviations in the below mentioned diagram with respect to EIP, HAZCHEM Code, Class label and others.	10	CO2,C O3
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OR

Analyze and Explain the following HAZCHEM codes:

i). 3YE

iii)2PE

ii)3 E

iv)3

Q 7	Formulate and propose the requirements of Emergency Plan as per Indian Factory Act, MSIHC Rules & Chemical Accidents (Emergency planning Preparedness and response) Rules?	10	CO4
Q 8	Demonstrate with suitable example the potentially hazardous natural phenomena with suitable example for following : a) Earthquake b) Landslides c) Cyclone	10	CO4
Q 9	Describe and explain the elements of ON site Emergency Plan. Discuss in brief about constitution of crisis alert system?	10	CO3,C O4

SECTION-C

Q 10	<p>Illustrate and point out the term “APELL”. Identify and distinguish the salient features of ISO 14001 and OHSAS 18001 with respect to preparation of emergency plan. Develop the EIP of a chemical having MSDS as stated below</p> <p style="text-align: center;">MSDS of ETHYL ALCOHOL</p> <p>MATERIAL SAFETY DATA SHEET PRODUCT NAME: ETHYL ALCOHOL (96,1-96,5% VOL, 192 PROOF, FOOD GRADE) MSDS NO: 01 EFFECTIVE DATE: March 3, 2011 EXPORTED BY: XYZ Company</p>	20	CO2
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	<p>PRIMARY CLASS: 3 CLASS NAME: FLAMMABLE LIQUID EC: 200-578-6 CAS: 64-17-5 UN: 1170 No need any emergency document by air transport if ethanol is sample and total is volume under 100ml</p> <p style="text-align: center;">EMERGENCY AND FIRST AID PROCEDURE</p> <p>INGESTION</p> <ul style="list-style-type: none"> • Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. • DO NOT INDUCE VOMITING. • Have victim drink about 250ml (8fl. oz.) of water to dilute material in stomach. • If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. • Seek medical assistance. <p>SKIN</p> <ul style="list-style-type: none"> • Flush contaminated area with water for at least 20 minutes. • Remove contaminated clothing under running water. • Completely decontaminate clothing before re-use, or discard. • If irritation occurs seek medical attention. <p>INHALATION</p> <ul style="list-style-type: none"> • Remove victim to fresh air. • Artificial respiration should be given if breathing has stopped and cardiopulmonary resuscitation if heart has stopped. • Oxygen may be given if necessary. • Seek medical attention immediately. <p>EYES</p> <ul style="list-style-type: none"> • Immediately flush eyes with water for at least 20 minutes, holding the eyelids open. • Seek medical attention immediately 		
Q 11	<p>CASE STUDY</p> <p>In a Cement factory, lubrication oil pipeline of vertical Roller Mill II of Raw Meal Section was rinsed with kerosene using centrifugal circulating pump, to remove the sludge. The total length of the pipeline was 70 metres. The inlet of the pipeline was located near the control panel; the kerosene so pumped into the VRM-II pipeline was collected in a carboy.</p> <p>At about 10.45 am, the pump was stopped. In order to remove the residual kerosene from the pipeline, the Assistant Foreman used a Nitrogen gas cylinder at one end of the pipeline; he asked a khalasi to connect a hose to the other end of the pipeline and hold the hose to a 200 litres barrel. By opening the Nitrogen gas cylinder and due to the Nitrogen Gas pressure, about 20 litres of residual kerosene was flushed from the pipeline and collected in the barrel. As the Nitrogen gas in the cylinder was exhausted, the Assistant Foreman brought an Oxygen Cylinder from the nearby area and by using a regulator he connected the oxygen cylinder to the inlet of the pipeline. At the other end, the khalasi was asked to insert the hose from the pipeline outlet into the 2 inch opening of the 200 litres barrel and hold it. At about 11.15 a.m., the Assistant Foreman, using the Regulator, reduced the Oxygen pressure to 4 kgf/sq.cm. (g) and let in the Oxygen gas into the Lube oil</p>	20	CO₂,C O₃

pipeline with the intention of flushing out the entire residual kerosene from the pipeline. In a few seconds, the barrel got exploded causing fire burn injuries to the khalasi who was holding the delivery end hose to the 200 litres barrel as well as to a Fitter/Welder and two contract workmen who were working closeby.

Identify and analyze the root cause and give recommendations for the above given case study?

OR

1) Identify the following Class labels:



2) Describe and analyze the Emergency information panel as per central motor vehicle rules. Also infer and illustrate the emergency procedures in case of truck/tanker accident.