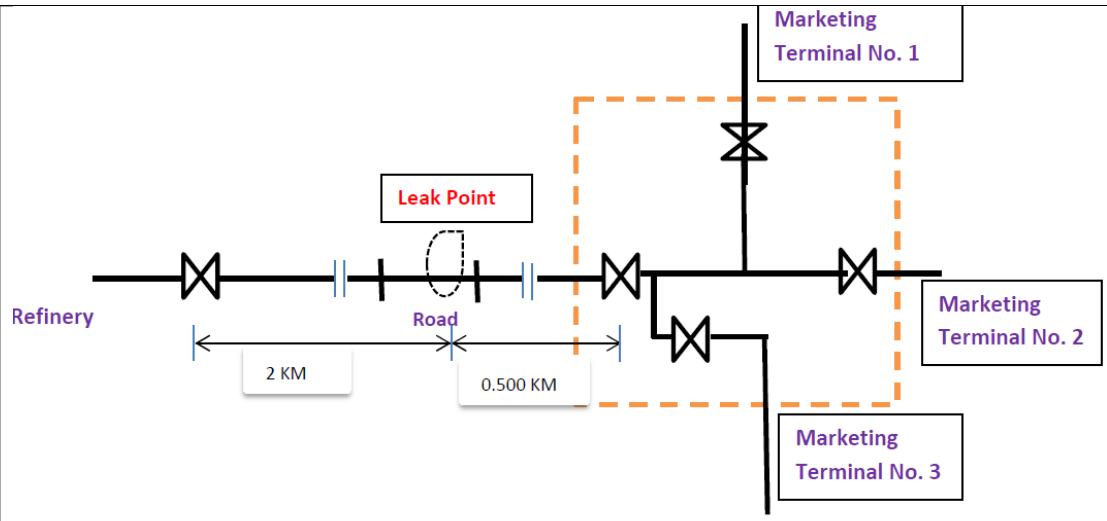


SECTION-C

Q 11	Explain in detail the OSHA guidelines for CSE. Explain the different types of CSE. Enumerate the flowchart for identifying a permit required confine space (PRCS)?	20	CO5
Q 12	<p>Explain the different types of work permits in details as per OISD 105 with an example from each permits. Also explain salient features of OISD 118 with respect to equipment spacing.</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">CASE STUDY</p> <p>It was late afternoon on a week end when the news of a big fire from a jetty pipeline area made people rush to the site. The leak in the pipeline at the jetty area was noted during the morning while MS was being transferred from one of the refinery to its marketing terminal. The pumping was stopped in the morning and preparatory work for repairing the line i.e. flushing of the line was in progress. The fire-fighters put the fire under control & finally extinguished the same, though it took time to do so, since the spilled MS got mixed with the water in the creek & was carried away to nearby areas during the tide. OBSERVATIONS:</p> <ul style="list-style-type: none">• The leak in the 14" OD line caused substantial spillage of MS; the spilled oil got mixed with the water in the adjacent creek & spread to nearby areas due to tidal effect. • Gully sucker & other firefighting accessories etc. were mobilized to recover the oil from the creek, • Flushing of the associated lines was started to undertake the repair of the line. After sometime when it was observed that the leakage of product increased substantially the flushing operation was stopped, • A major fire took place at about 100 M away from the leak spot; fire tenders were put into service to fight the fire, • Fire was put under control but kept on re-occurring intermittently, • Finally the fire was extinguished after eight hours.	20	CO4,C O5



SCHEMATIC SKETCH OF THE PIPELINE & LEAKAGE POINT

Discuss and analyze the root causes and also give recommendations?

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: Hazards Safety Measures in Process Industry

Semester: III

Programme: M.Tech HSE

Course Code:HSFS8004

Time: 03 hrs.

Max. Marks: 100

Instructions: Please read all questions

SECTION A

S. No.		Marks	CO
Q 1	As per OISD 105 Explain the different types of work permits with relevant examples.	4	CO1
Q 2	Discuss in brief the safety precautions to be taken while transporting Hydrocarbons through Rail, Road & Sea?	4	CO2
Q 3	As per OISD 129 Explain, some salient features of the Inspection of storage tanks.	4	CO1
Q 4	What do you meant by Hot work and Cold work?	4	CO4
Q 5	What do you understand by CSE and explain the roles of : i)Attendant ii) Entry supervisor iii) Authorized Entrant	4	CO2

SECTION B

Q 6	<p>What are fire, health & safety considerations at vacuum distillate tower & fluid catalytic cracking in refinery operations?</p> <p style="text-align: center;">OR</p> <p>Discuss in detail advantages and disadvantages of transportation of hydrocarbon products with reference to HSE issues.</p>	10	CO4,C O2
Q 8	<p style="text-align: center;">CASE STUDY of Ladder Accident scenario</p> <p>An employee is working on a ladder and the ladder seems to collapse. The employee falls off the ladder and breaks arm.</p> <p>The investigation reveals the following details:</p> <ul style="list-style-type: none"> • Employee had worked seven 12-hour shifts in a row. • Accident happened at end of shift. • Employee was standing on the top step of the ladder (an unsafe action). • The employee was approximately 10 feet above floor level. • No fall arrest or restraint system was used. • A ladder inspection policy is in place, but there is no evidence that the ladder has ever been inspected. • Investigation reveals the ladder was damaged and did not provide a stable working 	10	CO3

	<p>platform in any environment.</p> <ul style="list-style-type: none"> Interview with facility manager reveals that he did not inspect the ladder when it was due for inspection. He was aware that ladder needed to be inspected. <p>After studying the case study it is required to find out the root causes?</p>		
Q 9	What do you mean by “Aquifers”? Explain the types of tanks used for storage of petroleum Products. What are the types of roofs used in storage tanks and condition on which it depends?	10	CO4,C O2
Q 10	Explain the importance of Plant Inspection with reference to oil & Gas industry. Construct a inspection checklist for 33kv Substation in an Oil & Gas industry?	10	CO4
SECTION-C			
Q 11	<p>Explain the various precautions and safety considerations to be taken while storing:</p> <ul style="list-style-type: none"> i) Underground storage of Hydrocarbon ii) Pipeline transportation iii) Storage of bulk LPG 	20	CO5
Q 12	<p>Explain the different types of work permits in details as per OISD 105with an example from each permits. Also explain salient features of OISD 118 with respect to equipment spacing.</p> <p style="text-align: center;">OR</p> <p>Explain in detail the OSHA guidelines for CSE. Explain the different types of CSE. Discuss the flowchart for identifying a Permit required confine space(P RCS)?</p>	20	CO4,C O5