

Name:

Enrolment No:



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

Course: Hazards & Safety Measures in Process Industry

Semester: 3

Program: M.Tech HSE

Course Code: HSFS 8004

Time 03 hrs.

Max. Marks: 100

Instructions: All questions are compulsory

SECTION A

S. No.		Marks	CO
Q 1	Describe the following: a) Crown safety device (2 marks) b) Blanket work permit (1 mark) c) Horseplay (1 mark)	4	CO1
Q 2	For the process of fractionation, list the fire and health risks associated and briefly explain how they may arise.	4	CO1
Q 3	What are the hazards associated with the Breaking out Pipe process? Give the possible solutions to minimize the effects of these hazards.	4	CO2
Q 4	Explain the safety precautions to be taken while transporting hydrocarbons through rail, road & sea?	4	CO1
Q 5	Differentiate between plant inspection and plant auditing.	4	CO2

SECTION B

		Marks	CO
Q 6	Define "Aquifers"? Elaborate the types of tanks used for storage of petroleum products. Mention the types of roofs used in storage tanks and the conditions on which it depends.	10	CO1
Q 7	Summarize the importance of plant inspection with reference to oil & gas industry. Prepare an inspection checklist for a tank farm containing motor spirit and gasoline in an oil & gas industry?	10	CO2
Q 8	Discuss in detail advantages and disadvantages of transportation of hydrocarbon products with reference to HSE issues.	10	CO3
Q 9	Give a brief description of the fluid catalytic cracking process. (2 mark) Enlist the hazards associated with the process (2 mark) Briefly explain the causes of the hazards. (3 marks)	10	CO2

	<p>What are the measures to be taken to prevent these hazards? (3 marks)</p> <p style="text-align: center;">OR</p> <p>What is high temperature hydrogen cracking in heat exchangers? (2 marks) What is the major problem encountered on the heat transfer surfaces of heat exchangers? (1 mark) Mention how the problem may be overcome? (1 mark) List the types with an example each. (6 marks)</p>		
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SECTION-C

		Marks	CO
Q 10	<p>Choose a case investigation involving an accident in a confined space, with reference to the incident detail about what all went wrong and discuss the recommendations made in the investigation report.</p> <p style="text-align: center;">OR</p> <p>Welding of a pipe joint is to be performed in a 17 feet long newly constructed manhole. The opening of which is 2 feet wide at the top and the internal diameter is 4 feet. Elucidate the step by step procedure to be followed in carrying out this job, by emphasizing the roles of the personal involved, the checks to be performed, the precautions to be taken, instrumentation involved and the role of the permits.</p>	20	CO4
Q 11	<p>Detail the procedure for work permit system according to OISD 105? Prepare a sample permit for an employee to perform blinding of a pipeline carrying wastewater to a sewage treatment plant.</p>	20	CO3