

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2019

Course: Safety in Industrial Operations and Design

Semester: V

Program: B.Tech-Fire and Safety Engineering

Time 03 hrs.

Course Code: HSFS 3012

Max. Marks: 100

Instructions: Read the question and give the most relevant answer.

SECTION A

S. No.		Marks	CO
Q 1	Define rollover	4	CO2
Q2	Differentiate detonation and deflagration	4	CO1
Q3	Explain 5S principle.	4	CO1
Q4	List the important factors for selection of site location	4	CO2
Q5	Discuss the causes for Seveso chemical disaster of 1976	4	CO3

SECTION B

Q 6	Discuss the necessity of thermal hazard analysis and list the importance properties that can be assessed using thermal hazard assessment.	10	CO3
Q7	Write about the safe chlorine handling in detail.	10	CO1
Q8	As a safety expert discuss the concept of lighting elaborately	10	CO2
Q9	Explain the concept of inherently safer design in detail. (Or) Explain the principle and Application, of Differential Scanning Calorimeter with relevant sketch.	10	CO2 & CO1

SECTION-C

Q 10	a) Consider onset and end temperature of reactive compound is 200° C and 400 ° C , mass taken for analysis is 1 kg, consider coefficient of pressure is 1.01 .calculate the over pressure generated when the this 1 kg of reactive compound is exploded (consider condensed phase explosion) using relevant model. Recommend an approach to calculate the damage (in human) in terms of percentage upon explosion of 1kg of reactive compound.	20	CO3
Q11	a) As a safety expert, write the importance of flaring system and failure modes of flaring system in detail.	10+10	CO1 & CO2

	<p>b) Consider you are a project manager discuss the different phases of project management in detail.</p> <p>(Or)</p> <p>a) You are asked to develop a safe and optimized layout for construction site, explain your recommendations.</p> <p>b) List the factors that are responsible for the combustion of explosives.</p>		
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