Name:

S. No.

S. No

Q 1

Answer all the questions

Expand the following:

Enrolment No:



20

Marks

40

Mapped

Mapped CO

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2019

Course: Fire Engineering-I

Program: B. Tech-FSE

Course Code: HSFS 2005

Semester: IV

Time: 3 hrs.

Max. Marks: 100

Instructions: 1. Standards IS 2190 and NBC 2016 (part-4) shall be provided to the students.

SECTION A

Q I			
	a. FFFP		
	b. MAP	4	CO1
	c. PFPS		
	d. AFPS		
Q 2	Differentiate between "Boil Over" and "Slop Over"	4	CO 5
Q 3	Name various extinguishing agents and enlist their effect on fire	4	CO 1
	Define "Explosion". Brief about the classification of explosions.	4	CO 6
Q 4 Q 5	Explain the meaning of the following name plate details of portable fire		
	extinguishers.	1	CO 3
	i. 9A:21B:C	4	CO 3
	ii. 2A: 13B		
	SECTION B		•
S. No	Answer all the following:	40	Mapped
2.10		•0	TTUPPEG
5.110		Marks	CO
Q 6	Define Foam. Discuss the action of foam on fire and list various types of foam		
Q 6	Define Foam. Discuss the action of foam on fire and list various types of foam agents used in fire service along with their applications and limitations.	Marks	СО
	Define Foam. Discuss the action of foam on fire and list various types of foam	Marks	СО
Q 6	Define Foam. Discuss the action of foam on fire and list various types of foam agents used in fire service along with their applications and limitations. Discuss about stages of fire occurring in controlled environment. Also, name the	Marks 2+3+5	CO CO1
Q 6 Q 7 Q 8	Define Foam. Discuss the action of foam on fire and list various types of foam agents used in fire service along with their applications and limitations. Discuss about stages of fire occurring in controlled environment. Also, name the suitable detector for each stage. Expand and define VCE. Explain the causes and phenomenon (sequence of	Marks 2+3+5 2+8	CO CO1
Q 6 Q 7 Q 8	Define Foam. Discuss the action of foam on fire and list various types of foam agents used in fire service along with their applications and limitations. Discuss about stages of fire occurring in controlled environment. Also, name the suitable detector for each stage. Expand and define VCE. Explain the causes and phenomenon (sequence of events) of occurrence of VCE in case of BP Texas refinery explosion, 2005. Discuss the procedure to decide the extent of fire proofing. Also, mention the	Marks 2+3+5 2+8 1+1+8	CO CO 2 CO 6
Q 6 Q 7 Q 8	Define Foam. Discuss the action of foam on fire and list various types of foam agents used in fire service along with their applications and limitations. Discuss about stages of fire occurring in controlled environment. Also, name the suitable detector for each stage. Expand and define VCE. Explain the causes and phenomenon (sequence of events) of occurrence of VCE in case of BP Texas refinery explosion, 2005. Discuss the procedure to decide the extent of fire proofing. Also, mention the national/international standards/codes of reference.	Marks 2+3+5 2+8 1+1+8	CO CO 2 CO 6
Q 6 Q 7	Define Foam. Discuss the action of foam on fire and list various types of foam agents used in fire service along with their applications and limitations. Discuss about stages of fire occurring in controlled environment. Also, name the suitable detector for each stage. Expand and define VCE. Explain the causes and phenomenon (sequence of events) of occurrence of VCE in case of BP Texas refinery explosion, 2005. Discuss the procedure to decide the extent of fire proofing. Also, mention the national/international standards/codes of reference. (OR)	Marks 2+3+5 2+8 1+1+8	CO CO 2 CO 6

SECTION-C

Answer the following

		Marks	CO
Q 10	Expand and define BLEVE. Explain the causes, process of occurrence and	1+2+4+	CO 6
	aftermath effects of BLEVE on a flammable liquid storage tank.	6+7	
Q 11	Decide the number of fire extinguishers as per standard/code and number and type	8+12	CO 3,
	of hydrants to be installed per floor in a school building of floor dimension		CO 4
	(rectangular block shape) 90' X 15' X 20' (L X W X H) with two entrances/exits		
	along the short edges having ground + two floors with same length and width but		
	height decreases by 5' in each stage. Ground floor has office room, staff room and		
	laboratory facilities. Rest all are dedicated for class rooms.		
	OR		
	With neat sketches describe various types of fire sprinkler systems used in fire	16+4	CO 4
	service along with applications and limitations.		

Name:

Enrolment No:



20

Mapped

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

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Semester: IV

Time: 3 hrs.

Max. Marks: 100

Instructions:

S. No. Answer all the questions

SECTION A

	•	Marks	CO
Q 1	Expand the following: a. AFFF		
	b. DAP	4	CO1
	c. VCE		
0.2	d. PFPS Differentiate between "Jet Fire" and "Pool Fire"		CO 1
Q 2	Differentiate between Jet Fire and Pool Fire	4	CO 1, CO2
Q 3	List the steps in operation of an extinguisher	4	CO 1
Q 4	List all the standards (national & international) to be referred for extinguishers, sprinkler systems, fire pumps and spray systems.	4	CO 6
Q 5	Explain the meaning of the following name plate details of portable fire		
	extinguishers.	4	CO 3
	iii. 6A:21B:C	-	
	iv. 1A: 9B		
G N	SECTION B	40	3.6
S. No	Answer all the following:	40	Mapped
		Marks	CO
Q 6	Discuss the action of DCP and CO ₂ on fire and list various types of DCP agents and types of CO ₂ storage systems used in fire service along with their applications and limitations.	2+2+6	CO1
Q 7	Compartmentation is the process of segregating various areas in built spaces (buildings) with fire resistant materials. Doing so leads to limit the extent of fire to an area and prevents the fast escalation. However, if conditions are favorable this may lead to local overheating and fire may go out of control. Explain the stages of compartmental fire growth with necessary sketches and list the associated fire detectors.	2 + 8	CO 2
Q 8	Define "Boil Over" and "Slop Over" and discuss the phenomena of both.	1+1+4+	CO 5
Q 9	Discuss the procedure to decide the extent of fire proofing. Also, mention the national/international standards/codes of reference.	8+2	CO 5 & CO 6

	(OR)				
	Discuss the classification of HC storage tanks and mention code of reference. Also, with neat sketches explain the foam protection system to be installed in storage tanks containing flammable liquids as per OISD.	4+6			
	SECTION-C				
S. No	Answer the following	40	Mapped		
		Marks	CO		
Q 10	Expand and define BLEVE. Explain the causes, process of occurrence and	1+2+4+	CO 6		
	aftermath effects of BLEVE on a flammable liquid storage tank.	6+7	000		
Q 11	Explain the specifications of Pre-action and Deluge type sprinkler system with	8+12			
	necessary sketches, applications and restoration procedures.				
	(OR)		CO 4		
	With neat sketches describe the TFS of CO ₂ and DCP along with applications and				
	limitations.	20			