


Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2020

Course: Fire Engineering-II

Semester: IV

Program: B. Tech-FSE

Time 03 hrs.

Course Code: HSFS 3003

Max. Marks: 100

Instructions: 1. Read the questions carefully and give appropriate answer.
2. In case of numerical based questions make necessary assumptions if data given is insufficient.

SECTION A

S. No.	Answer the following	20 Marks	CO
Q1.	Brief the working principle of exhaust jet primer.	4	CO1
Q2.	Postulate about various types of ropes used in fire service	4	CO2
Q3.	Elucidate hand method of hose frictional loss calculation for standard attack hose.	4	CO3
Q4.	Expand the following: a. GVWR b. HVLR Monitor c. SDH d. SCBA	4	CO1
Q5.	Enlist and brief various types of ground/portable ladders.	4	CO2

SECTION B

S. No.	Answer the following	40 Marks	CO
Q6.	Discuss the specifications of “Water Tender” as per IS/OISD and NFPA standards.	10	CO1
Q7.	Describe various master stream devices used in fire service with applications and limitations.	10	CO2
Q8.	Specify the fire protection systems required to be installed and calculate the fire water demand for a LPG bottling station containing 2-horton spheres of dia. 45m and are separated by a distance of 100m.	10	CO3
Q9.	Explain various types of respiratory protection equipment carried by firefighters and method for calculation of their time of usage. <p style="text-align: center;">[OR]</p> Explain the parts, construction and working of various types of SCBAs used in fire service, along with their applications and limitations.	10 10	CO4

SECTION-C

S. No.	Answer the following	40 Marks	CO
Q10.	Discuss various modes of 'Forcible Entry' by defining it and explaining its significance. Also, enumerate various types of tools used therein.	20 Marks	CO2 & CO5
Q11.	Assume that one of the academic blocks of UPES are under fire and you're the fire chief/marshal of campus. Explain the steps taken by you to assess the situation and strategy to bring the situation into control. <p style="text-align: center;">[OR]</p> A one storied furniture mall is under fire and you're the fire chief of that area got a call from fire scene asking for immediate help. When arrived with team, you noticed that almost half of the room space is filled with heavy smoke. What'll be the command/instruction given by you, to your team in controlling the situation.	20 Marks	CO5

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SECTION A

S. No.	Answer the following	20 Marks	CO
Q1.	Brief various types of Centrifugal Pumps used in fire service as per national/internal standards. Also, quote the standard number.	4	CO1
Q2.	Brief the working principle of reciprocating pump.	4	CO1
Q3.	Define the following: a. Technical Rescue Rope b. MDH c. SCUBA d. Aerial Ladder	4	CO2
Q4.	Define 'Fire Stream'. Brief various types of fire streams based on type and capacity.	1+3	CO3
Q5.	Write a short note on types personal protective clothing used in fire service.	4	CO4

SECTION B

S. No.	Answer the following	40 Marks	CO
Q6.	Discuss the specifications of "Foam Tender" as per IS/OISD and NFPA standards.	10	CO1
Q7.	Describe various types of hoses used in fire service as per national and international standards, along with their maintenance procedure. Also, quote the codes of reference.	10	CO3
Q8.	Discuss the process for calculation of fire water demand in an O&G industry as per OISD.	10	CO3
Q9.	Explain various types of respiratory protection equipment carried by firefighters and method for calculation of their time of usage. <p style="text-align: center;">[OR]</p> Explain the parts, construction and working of various types of SCBAs used in fire service, along with their applications and limitations.	10 10	CO4

SECTION-C

S. No.	Answer the following	40 Marks	CO
Q10.	Discuss various types of ventilation methods used by fire service departments to avoid fatalities during firefighting emergencies.	20 Marks	CO2 & CO5
Q11.	Assume that one of the academic blocks of UPES are under fire and you're the fire chief/marshal of campus. Explain the steps taken by you to assess the situation and strategy to bring the situation into control. [OR] Enlist and discuss strategic points to be considered for deciding right course of action to be undertaken by fire service department, in a fire emergency.	20 Marks	CO5