


Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, May 2023</b>			
<b>Course: Fire Engineering II (Planning and Design of Fire Protection System)</b> <b>Program: B.Tech (Fire &amp; Safety Engineering)</b> <b>Course Code: HSFS 2016</b>			<b>Semester: IV</b> <b>Time: 03 hrs.</b> <b>Max. Marks: 100</b>
<b>Instructions: All questions are compulsory to attempt.</b>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.	Answer all the questions.	Marks	CO
Q 1	Define the following term: (i) NPSH (ii) SCUBA	4	CO1
Q 2	Postulates various types of ropes used in fire service.	4	CO1
Q 3	State the classifications of fire hydrant?	4	CO2
Q 4	Differentiate between percolating and non-percolating hose?	4	CO3
Q 5	Describe hoisting methods for tools and equipment.	4	CO2
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Discuss the role of pumps in the fire fighting systems. Explain in detail the centrifugal pump.	10	CO1
Q 7	Define “Fire Stream”. Discuss about various types of fire streams and associated fire nozzles.	10	CO1
Q 8	Discuss about the foam making equipment used in fire fighting operation?	10	CO1
Q 9	Explain the parts and working principle of SCBA’s used in fire service. OR Explain various types of respiratory protection equipment carried by firefighters and method for calculation of their time of usage.	10	CO2 CO4
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q 10	Considering the planning, design & operations aspects, create an inspection checklist for assessing the sprinkler system’s effectiveness.	20	CO5
Q 11	You are dispatched to a scene where a young boy has climbed up on a cell tower. On your arrival, you find that he is clinging tightly to an I-beam about 50 feet (15 meter) up the tower and parents of the boy are on-scene and they are frantic. The terrain does not allow for the use of an		

	<p>aerial ladder, so the decision is made to use a high-angle rescue. The crowd is getting very upset because of the delay. You will remain on the ground while the rope rescue technician makes the ascent.</p> <ul style="list-style-type: none"> <li>I. What type of hardware and harness will be needed for this rescue?</li> <li>II. How will the parents be reassured, and emotions of the crowd be managed?</li> </ul> <p style="text-align: center;">OR</p> <p>Your truck company is dispatched to a local strip mall shopping center at 05: 24 hours for a report of smoke coming from a furniture store. Your company is first due, along with the engine company from your station. As you pull up in front of the store, you see dark, heavy smoke being pushed from under the one-story eaves. When you look at the store windows, you notice that the smoke as banked down approximately halfway from the ceiling. Your officer instructs you to help set up the aerial ladder for roof ventilation.</p> <ul style="list-style-type: none"> <li>I. What is the purpose of ventilation at this fire?</li> <li>II. When should ventilation be performed? Where should this fire be vented?</li> </ul>	<b>20</b>	<b>CO4</b>
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