Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Planning and Design of Fire protection systems **Semester: IV**

Program: B.Tech. Fire and Safety Engineering **Time : 03 hrs.**

Course Code: HSFS2024 **Max. Marks: 100**

Instructions: Read the question paper properly and provide the most relevant answer

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain the Donning and Doffing with relevance to fire fighting.	**4**	**CO2**
Q 2	Sketch and explain the components of fire fighter's ladder	**4**	**CO3**
Q 3	Differentiate lined hose and unlined hose.	**4**	**CO3**
Q 4	List the respiratory hazards that necessitates the use of Breathing apparatus set.	**4**	**CO1**
Q 5	Compare preventive measures and protective measures in fire safety of buildings.	**4**	**CO3**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	With a possible sketch explain the different sprinklers and applications in detail.	**10**	**CO2**
Q 7	Discuss the concept of fire investigation in detail.	**10**	**CO1**
Q 8	A firefighter uses a breathing apparatus cylinder filled with air at a pressure of 250 Bar. The cylinder has a capacity of 1840 liters at 300 Bar. The average air consumption rate of the firefighter is 40 liters per minute. Assume a safety margin of 10 minutes. a) Calculate the total usable air volume available at 250 Bar. b) Calculate the working duration in minutes.	**10**	**CO3**
Q 9	Explain the various components present in the Fire engine. (OR) As a fire safety engineer, prepare a plan to conduct a fire drill at your worksite.	**10**	**CO4**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Prepare a layout of fire protection system of your institute and explain each component, its requirement and operating range with relevance to IS 3844.	**20**	**CO4**

Q 11	a) Explain Breathing apparatus, its types, application, importance and relevance standards in detail. b) Differentiate solid stream and fog stream with its importance and application. (OR) c) Explain the different phases involved in fire service rescue in detail. d) Differentiated types of pumps and the pressure requirements that used in firefighting with the support of the relevant standards. .	**(10+10) 20**	**CO2**