Name: **Enrolment No:**	UPES UNIVERSITY OF TOMORROW

USES

End Semester Examination, December 2023

Course: Fire Risk & Control **Semester : I**

Program: M Tech- HSE **Time : 03 hrs.**

Course Code: HSFS7024 **Max. Marks: 100**

Instructions: Attempt all questions

SECTION A (5Qx4M=20Marks)

Sr. No.	Questions	Marks	CO
Q 1	Explain the concept of fire-safe distance and its role in building design.	**4**	**CO2**
Q 2	In what scenarios would a fire flooding system be more suitable than traditional extinguishers?	**4**	**CO1**
Q 3	Calculate the fire intensity, if a forest fire has a total heat release rate of 5,000,000 kJ and covers an area of 1000 m^2.	**4**	**CO3**
Q 4	Discuss the purpose of a fire hydrant in a water supply system	**4**	**CO1**
Q 5	Identify the key components of an explosion protection system.	**4**	**CO1**
	SECTION B (4Qx10M= 40 Marks)		
Q 6	Compare the advantages and disadvantages of various fire extinguishing systems.	**10**	**CO2**
Q 7	Justify why the design approach for residential sprinkler systems might differ from commercial systems	**10**	**CO3**
Q 8	Evaluate how building materials and design can impact the rate of fire spread. OR In assessing the fire safety conditions and compliances, create a comprehensive fire protection system for a multi-story building.	**10**	**CO4**
Q 9	Describe the construction of a fire hose, including the materials used and highlight the purpose of different layers in a fire hose construction.	**10**	**CO1**
	SECTION-C(2Qx20M=40 Marks)		
Q 10	A manufacturing company XYZ is a medium-sized facility specializing in the production of industrial components. The plant's operations involve various machinery, flammable materials, and a complex layout. Concerns about fire safety prompted the implementation of a fire prevention plan. Over the past year, the facility experienced a minor fire incident due to sparks from welding activities. While the incident was swiftly controlled, it raised awareness about the need for a comprehensive fire prevention plan. Evaluate the effectiveness of a fire prevention plan in a given case study and suggest suitable controls for avoiding reoccurrences. OR Design a holistic explosion protection plan for a chemical processing plant, incorporating a multi-faceted approach (explosion vents, suppression systems, and isolation measures) to mitigate potential risks effectively.	**20**	**CO5**
Q 11	Conduct a fire risk assessment for a FMCG industrial facility with stringent fire safety regulations (As per BIS). Identify potential hazards, recommend preventive measures, and propose an emergency response plan in handling any adverse situation.	**20**	**CO3**