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

UPES

End Semester Examination, May 2025

Course: Structural Fire Protection System **Semester: II**

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

Course Code: HSFS7034 **Max. Marks: 100**

Instructions: Attempt all the questions.

SECTION A
(5Qx4M=20Marks)

S. No.	Questions	Marks	CO
Q 1	List essential fire safety precautions applicable to various hazardous buildings.	**4**	**CO1**
Q 2	List the key elements to be included in a fire safety training program.	**4**	**CO1**
Q 3	Explain the various causes of stack effects in working premises or buildings.	**4**	**CO2**
Q 4	Enlist the target of the arsonist at workplace.	**4**	**CO1**
Q 5	Differentiate between mild steel and alloy steel with specific emphasis on their fire behavior over prolonged exposure.	**4**	**CO3**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Propose mitigation measures for fire safety vulnerabilities in a residential building, referencing NBC guidelines.	**10**	**CO4**
Q 7	Enlist the various usage of bricks and their adverse effects with respect to rise in temperature	**10**	**CO2**
Q 8	Provide an overview of fire incidents caused by arson and the underlying causes	**10**	**CO3**
Q 9	Analyze the critical factors that must be considered when planning for compartmentation in building design. OR Analyze the significance of the time-temperature relationship in fire compartments.	**10**	**CO3**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Analyse the fire safety vulnerabilities of a mixed occupancy building (comprising residential, business, and assembly spaces) and propose a prioritised list of mitigation measures, considering NBC provisions and potential conflicts between occupancy types. OR Analyse the behaviour of steel under rising temperature conditions by examining its performance as: • (a) a structural material, and	**20**	**CO3**

	• (b) a protective material within building elements.		
Q 11	Develop a comprehensive pre-inspection checklist to assess the structural integrity of a building under both pre-fire and post-fire conditions, ensuring evaluation of critical parameters affecting stability, safety, and performance.	**20**	**CO5**