Name:
Enrolment No:

UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021
Semester: I

Course Name: Fire Risk & Control **Semester:**
Programme: M Tech- HSE/ HSE spl with DM **Time: 03 Hours**
Course Code: HSFS 7007 **Max. Marks: 100**

SECTION A

1. Each Question will carry 4 Marks
2. Instruction: Complete the statement / Select the correct answer(s)

Sr. No.	Question	CO
Q 1	List out the various factor over which heat release rate is going to be dependent on.	**CO1**
Q 2	Distinguish detonation and deflagration with one example.	**CO2**
Q 3	Discuss fire enclosure temperature in a building or compartment.	**CO1**
Q 4	Brief fire duration or time of burning and show how it is related with mass loss rate.	**CO1**
Q 5	List out the purpose of calculating fire load at workplace.	**CO2**

SECTION B

1. Each question will carry 10 marks
2. Instruction: Write short / brief notes

Q 6	Explain in detail of hose and their types. Also, discuss about the construction of hoses. **OR** Discuss various stages of fire along with their challenges.	**CO1**
Q 7	Create an inspection checklist for verifying the functional requirements and efficacy of sprinkler system in a high-rise building.	**CO5**
Q 8	Discuss the various factors effecting fire or combustion process.	**CO1**
Q 9	Explain the purpose of providing stand pipes. List out their types and brief the Class II & Class III standpipes.	**CO2**

SECTION C

1. Each Question carries 20 Marks.
2. Instruction: Write long answer.

Q 10

(a) For a building compartment of dimension 20 m wide, 20 m deep and 4 m high and contains 15000 kg of combustible material, if the area of the open window is 72 m2 and height of opening is 1.2. Calculate the maximum temperature and time equivalent for fire severity.

(b) Being a fire safety assessor, identify and analyse the work place challenges (administration prospective) in implementation of fire safety requirements at workplace.

OR

(a) Explain various explosion protection principle and their effectiveness.

(b) A manufacturing process industry uses the following material. Calculate the fire load by using the following data: -

CO3

Material	Quantity in Kg.	Area in Sq. mtr.	Calorific value	
			(KJ/Kg)	(Kcal/kg)
Paper	100	100	15650	3725.38
Wood	2000	300	17500	4179
Coal	10000	500	20000	4776
Rubber	500	200	40000	9552
Petroleum products	5000	400	43000	10268.4

Q 11 Analyze importance of Heat Release Rate in combustion process. Calculate the heat release rate from a ventilation control fire burning inside an enclosure of having a window 2 m wide and 1.5 m high. **CO4**