


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2022			
Course: M Tech Program: HSE Course Code: HSFS 8028 (Fire Risk Assessment and Planning)		Semester: III Time : 03 hrs. Max. Marks: 100	
Instructions: All questions are compulsory.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	A five story building, if the width of staircase is 1.25m, calculate the occupant serving capacity of the stairs.	4	CO3
Q 2	Discuss relative density of movement of people in a building and its application.	4	CO2
Q 3	Name various classification of buildings.	4	CO1
Q 4	What do understand by “length of stride”? Explain its consideration during building evacuation route and exits	2+2=4	CO2
Q 5	Define fire safety audit objectives.	4	CO5
SECTION B (4Qx10M= 40 Marks)			
Q 6	Discuss various stages of evacuation applicable to a work place. Highlight major planning & design consideration with respect to fire & life safety.	5+5=10	CO2
Q 7	Enlist various classification of buildings based on occupancy. Discuss in detail any one classification of buildings.	5+5=10	CO1
Q 8	Explain the fire risk assessment and their planning for a high-rise building. List out the steps to be included for carrying out fire risk assessment.	6+4=10	CO3
Q 9	Determine (a) Width of an exit (b) Number of exit and (c) Width of an aisle of an auditorium having 1600 occupants with the following details:	4+3+3=10	CO3

	Time taken in evacuation is 3½ minutes, Delay time is 03 Seconds, assume standard value for specific traffic capacity, Width of opening is 2 m in case of auditorium, assume that there are 10 seats in a row with width of seat as 0.70m, V1= 40m/min, Da=10 person/m ² , and length of aisle is 20 m.		
SECTION-C (2Qx20M=40 Marks)			
Q 10	Perform fire risk assessment for the Central Instrumentation Center (CIC) of UPES. Depict the layout and approximately estimate the fire load of the lab, along with potential hazards and suggest suitable control measures & design improvements.	4+4+6+6=20	CO4
Q 11	Fire safety audits has major role in improving fire safety condition of any building. Explain following in details - (i) Types of fire safety audits & its importance. (ii) Steps involved in conducting fire safety audit at work place. (iii) Advantage and disadvantage of internal & external audit.	6+6+8=20	CO5