


Name: Enrolment No:		
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2022		
Course Name: Fire Engineering IV Programme: B Tech- Fire & Safety Engineering Course Code: HSFS 4005 No of page: 01		Semester: VII Time: 03 Hours Max. Marks: 100
SECTION A Attempt all questions. Each question carries 4 Marks		
Sr. No.	Question	CO
Q 1	Explain the advantage of internal audit.	CO1
Q 2	Relate traffic clearing capacity of an exit as an important aspect for emergency evacuation.	CO2
Q 3	Explain the industrial building and their types.	CO1
Q 4	Distinguish Normal and Chaotic evacuation.	CO1
Q 5	Discuss arson and its cause.	CO1
SECTION B Attempt all questions. Each question carries 10 Marks		
Q 6	Reflect the purpose of providing refuge area in a high-rise building. Calculate the minimum area required for refuge for four floors of 700 m ² each if the occupant load is 10m ² /person and the occupant density is 0.3m ² /person.	CO3
Q 7	Explain the motives of arson and conclude their control measures at the workplace. OR Explain the fire investigation and identify the various factor influencing effectiveness of fire investigation .	CO3
Q 8	Enlist the general requirements of routes & exits in a building.	CO2
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: Time taken in evacuation is 4 minutes, Delay time is 05 Seconds, assume standard value for specific traffic capacity, Width of opening is 2 mtr in case of auditorium, assume that there are 10 seats in a row with width of seat as 0.70m, V ₁ = 40m/min, D _a =10 person/m ² and length of aisle is 20 mtr.	CO4
SECTION C Attempt all questions. Each question carries 20 Marks		
Q 10	A Company accident statistics are as follows: Near misses: 102; No of Minor Injury: 20; Fatality: 02; Even after above incidents, the organization is not ready to allocate budget in deploying external agencies for assessing the safety culture levels of the organization and further sharing the gaps for proactive implementation. Being a fire safety expert: - <ol style="list-style-type: none"> 1. Do the technical and economical evaluation of safety of workplace based on the incidents available verses cost incur on deployment of external agencies. 2. The role of safety in-charge for showcasing their strategy to convince the management for deployment of external agencies for the evaluation. 3. Find the way and out for preventing such type of re-occurrences. 	CO5
Q 11	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. OR Being a fire safety professional, reflect the essential of education & training at work place. List out the objective of fire safety training and their importance	CO2