Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec-2023

FT3CO37 Fire Prevention & Protection System

Programme: B.Tech. Branch/Specialisation: FT

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Which building material is known for its fire- resistant properties and is commonly used for high rise buildings? **1**

(a) Wood (b) Steel (c) Concrete (d) Glass

ii. When planning the layout of an industrial plant, what is the key consideration for optimizing workflow and efficiency? **1**

(a) Employee preferences

(b) Minimizing environmental impact

(c) Minimizing travel distances

(d) Maximizing use of natural lighting

iii. Fire doors should always open in the direction of **1**

(a) Egress (exit)

(b) The nearest Fire Extinguisher

(c) The source of the fire

(d) The building's main entrance

iv. Which type of pipeline failure occurs due to the development of cracks or corrosion in the pipeline material? **1**

(a) Mechanical failure (b) Natural disaster failure

(c) Corrosion failure (d) Chemical reaction failure

v. What is the purpose of a fire sprinkler head? **1**

(a) To control the water flow in a hydrant system

(b) To detect smoke and trigger an alarm

(c) To release foam to extinguish fires

(d) To disperse water when exposed to heat

P.T.O.

vi. What is the function of a dry riser system in a building? **1**
(a) To transport dry goods between floors
(b) To supply water to upper floors for fire protection
(c) To facilitate natural ventilation
(d) To remove excess moisture from the building

vii. What is an Inergen fire suppression system? **1**
(a) A type of fire extinguisher
(b) An inert gas fire suppression system
(c) A high pressure water mist system
(d) A foam based fire suppression system

viii. Which type of Fire alarm system can pinpoint the exact location of a triggered detector or device? **1**
(a) Conventional Fire Alarm System
(b) Addressable Fire Alarm System
(c) Wireless Fire Alarm System
(d) Voice Evacuation System

ix. Which of the following is a key aspect of good housekeeping in a manufacturing facility? **1**
(a) Storing chemicals in unlabeled containers
(b) Disposing of hazardous waste in the regular trash
(c) Properly labeling all containers and storage areas
(d) Overloading electrical outlets

x. In a Plant fire brigade, which individual is responsible for coordinating the brigade's activities and serving as a liaison with external emergency responders? **1**
(a) Fire fighter
(b) Fire Marshal
(c) Fire Extinguisher Inspector
(d) Fire Alarm Technician

Q.2	i.	Differentiate between active and passive fire protection systems.	**2**
	ii.	Explain objectives of fire safe building design.	**3**
	iii.	Explain the various building materials used in construction. Explain the behaviour of any one in case of Fire.	**5**
OR	iv.	Describe the general principles of fire grading of building.	**5**

Q.3	i.	What are the devices used for protection from lightening?	**2**
	ii.	Explain the salient features of IS: 2190- selection, installation & maintenance of First Aid Fire Extinguishers.	**8**
OR	iii.	Explain the key factors and considerations in the layout of hazardous pipelines in an industrial facility. Discuss the importance of proper spacing, routing and material selection for pipeline safety.	**8**
Q.4	i.	Differentiate between wet and dry rising mains.	**2**
	ii.	Explain the layout of typical sprinkler installation along with different types of sprinklers.	**8**
OR	iii.	Explain different types of Water Spray Projector Systems along with its neat sketch and working principle.	**8**
Q.5	i.	Differentiate between low, medium & high expansion foam.	**2**
	ii.	Explain any one type of foam system for firefighting.	**8**
OR	iii.	Explain any one type of Gas/Vapour system used for firefighting along with its neat sketch.	**8**
Q.6	i.	Explain smoke movement in a building.	**3**
	ii.	Describe the different firefighting facilities in a model building.	**7**
OR	iii.	Explain any one case study of fire where large numbers of people are affected.	**7**

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