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

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2022

FT3CO13 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.

Q.1 i. Pour point and freezing point is equal for- **1**

(a) Petrol (b) Water (c) Diesel (d) Crude petroleum

ii. _____ is best suited to extinguishing oil or flammable liquid fire. **1**

(a) Soda acid (b) Vaporizing liquid

(c) Foam (d) DCP

iii. The following extinguisher is suitable for cotton or other textile fire- **1**

(a) Water (b) Soda acid

(c) Foam (d) Dry chemicals

iv. What does PASS stand for? **1**

(a) Pull Arm Shout Squeeze (b) Push Arm Shoot Sweep

(c) Pull Aim Squeeze Sweep (d) Push Aim Shoot Shout

v. The most common extinguisher found in service today is ____. **1**

(a) Water extinguishers (b) Dry chemical extinguishers

(c) Halon extinguishers (d) Foam extinguishers

vi. A carbon dioxide extinguisher is rated for _____ fires. **1**

(a) Class A and D (b) Class B and C

(c) Class C (d) Class D

vii. A dry chemical tri-class extinguisher should be used on _____ fires. **1**

(a) Class A (b) Class B (c) Class C (d) All of these

viii. Class A fires involve _____. **1**

(a) Ordinary combustibles (b) Flammable liquids

(c) Electrical equipment (d) Flammable metals

P.T.O.

	ix.	When fighting electrical fire, which of the following should not be used? (a) Water Fire Extinguisher (b) Foam Fire Extinguisher (c) DCP Extinguisher (d) Neither A nor B should be used	**1**
	x.	Water fire extinguishers have a _____ located above them. (a) Red coloured band (b) Blue coloured band (c) Black coloured band (d) Green Coloured band	**1**
Q.2	i.	Write the fundamental principles of fire prevention & protection measures.	**2**
	ii.	Mention the important points to be considered at drawing stage of a factory building.	**3**
	iii.	State the general considerations for layout & planning of a workplace or work station.	**5**
OR	iv.	Determine the number of fire extinguishers required to give adequate protection for a given property. Risk: Light Engineering Workshop (Light Hazard) Area: 315m * 112m	**5**
Q.3	i.	The cross sectional area of a duct is A = 2.445 sq ft. The average velocity of air flowing in the duct is V = 3500 ft/min at standard conditions. Calculate the flow rate Q.	**3**
	ii.	Explain the different types of ventilation for a factory building with sketch.	**7**
OR	iii.	Discuss the points to be considered while designing a hood for local exhaust ventilation.	**7**
Q.4	i.	Enlist any four types of fixed firefighting installations.	**4**
	ii.	Explain the hydrant system according to TAC guidelines clearly mentioning the pump, capacity & delivery pressure with diagram.	**6**
OR	iii.	Explain the sprinkler system with its types and draw the table for maximum ceiling temperature, operating temperature, colour of the bulb & temperature classification as per NFPA – 13.	**6**
Q.5	i.	Give the types of foam system with its expansion ratio.	**2**

	ii.	What are the characteristics of foam and explain inline foam inductor with the help of diagram?	**8**
OR	iii.	Describe the venting and suppression system with its application.	**8**
Q.6		Attempt any two:	
	i.	Write a note on FM 200 system.	**5**
	ii.	Explain the housekeeping and its management system.	**5**
	iii.	Classify the types of occupancies according to its fire load.	**5**

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Marking Scheme
FT3CO13 Fire Prevention & Protection System

Q.1	i.	Pour point and freezing point is equal for- (b) Water		**1**
	ii.	_____ is best suited to extinguishing oil or flammable liquid fire. (c) Foam		**1**
	iii.	The following extinguisher is suitable for cotton or other textile fire- (a) Water		**1**
	iv.	What does PASS stand for? (c) Pull Aim Squeeze Sweep		**1**
	v.	The most common extinguisher found in service today is ____. (a) Water extinguishers		**1**
	vi.	A carbon dioxide extinguisher is rated for _____ fires. (b) Class B and C		**1**
	vii.	A dry chemical tri-class extinguisher should be used on _____ fires. (d) All of these		**1**
	viii.	Class A fires involve _____. (a) Ordinary combustibles		**1**
	ix.	When fighting electrical fire, which of the following should not be used? (d) Neither A nor B should be used		**1**
	x.	Water fire extinguishers have a _____ located above them. (a) Red coloured band		**1**
Q.2	i.	Fundamental principles of fire prevention & protection measures.		**2**
	ii.	Important points to be considered at drawing stage of a factory building. 1 mark for each stage		**3**
	iii.	General considerations for layout	3 marks	**5**
		Planning of a workplace or work station	2 marks	
OR	iv.	Classification	2 marks	**5**
		Occupancies	3 marks	
Q.3	i.	Calculate the flow rate Q.		**3**
	ii.	Five types of ventilation for a factory building		**7**
		1 mark for each	5 marks	
		Sketch of any two	2 marks	
OR	iii.	Designing and layout	2 marks	**7**
		Five Major points	5 marks	
Q.4	i.	Any four types of fixed firefighting installations. 1 mark for each		**4**
	ii.	Hydrant line with specific IS code	3 marks	**6**
		Pressure, capacity, types of pump	3 marks	
OR	iii.	Sprinkler system	3 marks	**6**
		Colour Coding	2 marks	
		NFPA-13	1 mark	
Q.5	i.	Types of foam system	1 mark	**2**
		Its expansion ratio.	1 mark	
	ii.	Inline foam inductor	4 marks	**8**
		Sketch	2 marks	
		Characteristics of foam	2 marks	
OR	iii.	Venting system with its application	4 marks	**8**
		Suppression system with its application	4 marks	
Q.6		Attempt any two:		
	i.	With fuel design and layout FM 200 system.		**5**
	ii.	Housekeeping	2 marks	**5**
		Its management system.	3 marks	
	iii.	Five types of occupancies according to its fire load.		**5**

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