

Enrollment No.....



Faculty of Engineering  
End Sem (Even) Examination May-2022  
FT3EL08 Rescue Equipments & Techniques

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. Thickness and material of rope which is used in extension ladder 1  
according to IS 4571.  
(a) Manila 45 mm in circumference  
(b) Nylon 66 mm in circumference  
(c) Manila 50 mm in circumference  
(d) Polypropylene 30 mm in circumference
- ii. By which tools we can perform expansion as well as hydraulic testing 1  
of pipes at the same place which saves material transportation/  
handling.  
(a) Hydraulic expander (b) Hydraulic cutter  
(c) Hydrotest machine (d) Venturi meter
- iii. What are the IS (Indian Standard) code of water tender Type-B & 1  
Foam Tender?  
(a) IS 951 & IS 10242 (b) IS 950 & IS 10460  
(c) IS 948 & IS 950 (d) IS 10460 & IS 951
- iv. Hydro pressure test of CO<sub>2</sub> and water type fire extinguisher is done at 1  
how much pressure and for how many minutes according to IS 2190?  
(a) CO<sub>2</sub>-250 bar, Water-35 bar & Time- 2.5 min.  
(b) CO<sub>2</sub>-150 bar, Water-35 bar & Time- 3.5 min.  
(c) CO<sub>2</sub>-200 bar, Water-25 bar & Time- 3.0 min.  
(d) CO<sub>2</sub>-150 bar, Water-30 bar & Time- 2.0 min.
- v. In crutch carry method how many rescuers to be required? 1  
(a) Four man (b) Two man  
(c) Single man (d) Three man

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- vi. What is the main problem that a firefighter faces while extinguishing a fire? **1**  
 (a) Smoke (b) Water pressure  
 (c) Heat intensity (d) Both (a) and (c)
- vii. What is the gas in the breathing apparatus? **1**  
 (a) Oxygen gas (b) Atmospheric gas  
 (c) N<sub>2</sub>, O<sub>2</sub> & CO<sub>2</sub> (d) None of these
- viii. How many types of BA (Breathing Apparatus) set? **1**  
 (a) 4 (b) 2 (c) 3 (d) None of these
- ix. If the pressure gauge of the set BA shows a pressure of 200 bar, how long will it work? **1**  
 (a) 15 min. (b) 30 min. (c) 20 min. (d) 25 min.
- x. Under how much pressure does the warning whistle start ringing in the SCBA set? **1**  
 (a) 50 bar (b) 45 bar (c) 40 bar (d) 55 bar
- Q.2 i. Describe Air lifting bag and its size with capacity. **2**  
 ii. Define any three - hydraulic jack, hydraulic expander, electric cutter and chain saw. **3**  
 iii. How many types of ladders which is used in fire service? Define its application and working principle. **5**
- OR iv. Describe all parts of aluminium extension ladder according to IS 4571. **5**
- Q.3 i. What are different types of water tender and write its IS Code? **2**  
 ii. Give specification of multipurpose tender, foam tender and emergency rescue tender. **8**
- OR iii. What are different types of fire extinguishers? Describe its types, application and method. **8**
- Q.4 i. Describe any three of the following: **3**  
 (a) Two men carry (b) Three men carry  
 (c) Four men carry (d) Chair carry
- ii. What is the main reason of earthquake? Also explain about its early warning system. **7**
- OR iii. Explain about main problem during firefighting. **7**

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- Q.5 i. Explain the calculation of working duration of the breathing apparatus set. **4**  
 ii. Explain about artificial respiration and their techniques. **6**  
 OR iii. Explain about composition of air during inhalation and exhalation. **6**
- Q.6 Attempt any two:  
 i. How many types of masks? Explain any three of them. Also discuss its working principle and application. **5**  
 ii. What is the BA set and its types? Explain it. **5**  
 iii. What is the IS Code of open type breathing apparatus set. Also explain its constructional features according to IS Code. **5**

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## Marking Scheme

### FT3EL08 Rescue Equipments & Techniques

Q.1	i.	Thickness and material of rope which is used in extension ladder according to IS 4571. (d) Polypropylene 30 mm in circumference	1
	ii.	By which tools we can perform expansion as well as hydraulic testing of pipes at the same place which saves material transportation/ handling. (a) Hydraulic expander	1
	iii.	What are the IS (Indian Standard) code of water tender Type-B & Foam Tender? (b) IS 950 & IS 10460	1
	iv.	Hydro pressure test of CO <sub>2</sub> and water type fire extinguisher is done at how much pressure and for how many minutes according to IS 2190? (a) CO <sub>2</sub> -250 bar, Water-35 bar & Time- 2.5 min.	1
	v.	In crutch carry method how many rescuers to be required? (b) Two man	1
	vi.	What is the main problem that a firefighter faces while extinguishing a fire? (d) Both (a) and (c)	1
	vii.	What is the gas in the breathing apparatus? (a) Oxygen gas	1
	viii.	How many types of BA (Breathing Apparatus) set? (c) 3	1
	ix.	If the pressure gauge of the set BA shows a pressure of 200 bar, how long will it work? (b) 30 min.	1
	x.	Under how much pressure does the warning whistle start ringing in the SCBA set? (d) 55 bar	1
Q.2	i.	Air lifting bag and its size with capacity.	2
	ii.	Define any three - hydraulic jack, hydraulic expander, electric cutter and chain saw. 1 mark for each (1 mark * 3)	3
	iii.	Types of ladders Its application and working principle	2 marks 3 marks
OR	iv.	All parts of aluminium extension ladder according to IS 4571. Full marks for explaining each part	5

Q.3	i.	Types of water tender and it's IS Code		2
	ii.	Specification of multipurpose tender Foam tender Emergency rescue tender	3 marks 2.5 marks 2.5 marks	8
OR	iii.	Types of fire extinguishers Four types 2 marks each		8 (2 marks * 4)
Q.4	i.	Describe any three of the following: 1 mark for each (a) Two men carry (b) Three men carry (c) Four men carry (d) Chair carry		3 (1 mark * 3)
	ii.	Reason of earthquake Its early warning system	3 marks 4 marks	7
OR	iii.	Main problem during firefighting As per the explanation		7
Q.5	i.	Calculation Working	2 marks 2 marks	4
	ii.	Artificial respiration Their techniques	3 marks 3 marks	6
OR	iii.	Composition of air during inhalation Composition of air during exhalation	3 marks 3 marks	6
Q.6		Attempt any two:		
	i.	Types of masks and its working principle and application As per the explanation		5
	ii.	Definition of BA set Its types	2 marks 3 marks	5
	iii.	IS Code Its constructional features according to IS Code	2 marks 3 marks	5

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