

Seat No. : _____

AC-137

April-2016

B.Sc., (Fire & Safety) Sem.-VI

CC : Fire Safety Design

Time : 3 Hours]

[Max. Marks : 70

1. (a) Give introduction of sprinkler system and its general requirements. What are the types of sprinkler system, out of that explain wet system. (7)

OR

What is deluge valve, construction of deluge valve and how it works ?

- (b) What do you understand by Dry sprinkler system and pre-action system ? (7)

OR

Depending upon feed how many sprinkler systems are there ,explain any two feeds with sketch.

2. (a) What is fundamental role of fire detection system. How many types of fire detectors are used in fire services ? Explain any two of them. (7)

OR

Explain types of smoke detectors and fully describe light obscuration principle and light scattering principle.

- (b) Explain principle of operation of detectors and also in details mention working principle of heat detector and line detector. (7)

OR

What do you understand by emergency lighting and list out the places in building where emergency lighting should be placed.

3. (a) Give definition of smoke ,why it is considered dangerous than even burn cases and what are the different methods used to control movement on smoke in high rise buildings. (7)

OR

What are the forces responsible for smoke movement in building describe each one in details.

- (b) Define ventilation, advantage of ventilation and difference between natural ventilation and artificial ventilation. (7)

OR

What is pressurization, where it is used and explain staircase pressurization with simple sketch.

4. (a) What are the general properties of CO₂, its extinguishing properties and general safety guidelines in case of CO₂ release. (7)

OR

What are the limitations of carbon dioxide and application of CO₂ system ?

- (b) Give an overview of Dry chemical powder extinguishing system, what are the components required in installation of DCP system. (7)

OR

What is the difference between total flooding and local application of DCP system and give names of extinguishing properties of DCP ,explain any two major extinguishing property.

5. Write correct answer from the options. Each carries **one** mark. (14)

1. This is responsible for sprinkler operation
(a) Infrared rays (b) UV rays
(c) temperature (d) pressure
2. This sprinkler can be used
(a) reconditioned (b) repaired
(c) defective (d) None
3. In this system, sprinklers are always charged with air
(a) wet (b) dry
(c) pre engineered (d) none
4. In this system all sprinklers are open
(a) diffuse (b) deluge (c) diluge (d) dilute
5. This fed system is preferred for peaked roof
(a) center (b) end (c) grid (d) loop
6. Design density for low hazard sprinkler is
(a) 200 lpm/m² (b) 225 lpm/m²
(c) 250 lpm/m² (d) 300 lpm/m²
7. Blue bulb sprinkler will operate at
(a) 91*c (b) 111*c (c) 121*c (d) 141*c
8. This detector uses a small amount of radio-active source
(a) Ionisation type (b) optical type
(c) line type (d) beam type
9. Infrared detectors are normally used for which area ?
(a) Large open area (b) Small open area
(c) Closed area (d) Sealed area
10. This detector can be disturbed by solar radiation
(a) U.V detector (b) I.R detector
(c) heat detector (d) smoke detector
11. CO₂ flooding system NFPA code is
(a) 10 (b) 11 (c) 12 (d) 14
12. CO₂ is lighter than air Yes / No
13. Solid particles of CO₂ can conduct electricity. true / false
14. What should be the discharge time for total CO₂ release in secs ?
(a) 10 (b) 20 (c) 30 (d) 45