

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – June 2023
Programme Name: B Tech (ME)
Semester: VI
Subject Code: UG11T3601
Subject Name: Ship Fire Prevention and Control

Date: 26.05.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

Section A

Answer all Questions - 01 Mark each

Choose the Correct Answer

1. The ship is divided into many main vertical and horizontal zones by thermal and structural boundary
 - a) to improve stability
 - b) to improve and contain fire safety
 - c) to reduce the cost of construction
 - d) None of the above

2. SOLAS chapter _____ deals with "Construction - Fire protection, fire detection and fire extinction"
 - a) - I
 - b) - I-2
 - c) - II-1
 - d) - II-2

3. For fire investigation, the points to be considered
 - a) how the fire was discovered
 - b) time at which the fire alarm was sounded
 - c) the position and nature of fire
 - d) All of the above

4. Precaution should be taken while using portable CO₂ extinguisher to avoid
 - A. – electrical shocks
 - B. – extinguisher explosion while fire fighting

C. – frostbite injuries due to expanding Co₂ gas

D. – all of above

5. A flame screen

- a) permits the passage of vapour but not the flame
- b) prevents the passage of flammable vapours
- c) prevents inert gas from leaving the tank
- d) permits vapours to exit a tank, but prevents vapours to enter a tank

6. The atmosphere in a tank is too rich when it is

- a) incapable of supporting combustion because the hydrocarbon vapour content makes the atmosphere below the LFL
- b) capable of supporting combustion
- c) in a non-combustible state which can be relied on to occur naturally on a regular basis
- d) incapable of supporting combustion because the hydrocarbon vapour content makes the atmosphere above the UFL

7. The method of extinguishing a fire by cutting of the oxygen supply from the fire triangle is called as

- a. Cooling
- b. Smothering
- c. Inhibition
- d. Starvation

8. Foam extinguishes the fire by:

- a: Chemically absorbing the oxygen
- b: Smothering the burning material.
- c: Releasing large amount of CO₂.
- d: None of the above

9. If heavy smoke is coming from the paint locker, the FIRST fire fighting response should be to

- a) release the CO₂ flooding system
- b) enter and use a portable extinguisher
- c) open the door to evaluate the extent of the fire
- d) secure the ventilation

10. Radiation spreads of a fire by

- a) transferring heat across an unobstructed space
- b) heated gases flowing through ventilation systems
- c) burning liquids flowing into another space
- d) transmitting the heat of a fire through the ship's metal

Section B

Answer all Questions - 02 Marks each

11. Explain Fire Tetrahedron?
12. Write down the various colour coding of portable fire extinguishers?
13. With reference to SOLAS, Write about the location and requirements of the Emergency Fire Pump
14. what is a "Non-Combustible" material.
15. Write about the importance of Isolating Valve fitted in Fire Line between Machinery Space and Deck. State it's Location

Section C

Answer any Five Questions - 10 Marks each

16. Explain Standard fire test and Classify different types of bulkheads. (10 Marks)
17. (a) Draw and explain the various types of fire detectors? (5 marks)
(b) Explain the Periodic Maintenance, Inspection and Testing carried out on Fire Detection and Alarm Systems (5 Marks)
18. Sketch and Describe the Portable Dry Chemical Powder Fire Extinguisher and its maintenance & testing (10 Marks)
19. (a) What are the various equipment's in Fireman's outfit? Explain about SCBA and its mountings? (5 marks)
(b) With a neat Sketch explain an International Shore Connection (5 Marks)
20. (a) Explain the action to be taken in case of Fire in Galley (5 Marks)
(b) Explain the protections provided for electrical installations in hazardous zones (5 Marks)
21. Draw and explain the Fixed type low expansion foam system on Oil Tankers? (10 Marks)
22. A large ship is stationed at Dry Dock, what are practical techniques and considerations for fighting fire in such situation. (5 Marks)
(b) Draw a neat Sketch of High Pressure Fixed CO₂ Fire Fighting System of Engine Room and Label the Parts (5 Marks)