

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2023
Programme Name: B Tech (ME)
Semester: VI
Subject Code: UG11T3601
Subject Name: SHIP FIRE PREVENTION AND CONTROL

Date: 13.11.2023

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

Choose the correct answer as applicable. Each MCQ carries 1 marks.
[10 x 1 = 10 marks]

1. How do you classify fire of combustible materials such as wood, cloth, paper, rubber on ships?
A: Class D
B: Class A
C: Class B
D: Class C
2. What is the best method to control Class C fires?
A: Dry chemical powders
B: Water
C: Foam
D: Grease
3. 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
4. Where should the emergency fire pump be located?
A: Deck
B: Outside engine room
C: Bridge
D: Inside engine room

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. Which of the following is NOT part of fireman's outfit onboard a vessel?
 - A: Breathing apparatus
 - B: Safety shoes
 - C: Hand gloves
 - D: Plastic cover to be worn above clothing
7. Typically when is Hot Work Permit issued?
 - A: 3 days before hot work commences
 - B: 7 working days before hot work commences
 - C: Immediately before hot work commences
 - D: None of the above
8. Who is responsible for ensuring regular updating of fire control plan?
 - A: Master
 - B: Ship owner
 - C: Ship management team
 - D: All of the above
9. On what principle does fire damper work?
 - A: Releasing CO₂
 - B: Releasing water
 - C: Preventing additional oxygen from entering the space
 - D: None of the above
10. What is the purpose of International Shore Coupling?
 - A: To use during wear and tear of hoses on vessel
 - B: Take connection from shore or other ships for firefighting in case of onboard pump failure
 - C: Stabilizing fire extinguishers
 - D: Lowering lifeboats

Section B

Answer all questions. Each question carries 2 marks. [5 x 2 = 10 marks]

11. Write a short note to explain self contained breathing apparatus.
12. How are class B fires different from class C fires?
13. Explain Fire Triangle and Fire Tetrahedron.
14. What causes spontaneous combustion?
15. What is Fire Control Plan? Where is its location on ship?

Section C

Answer any 5 questions. Each question carries 10 marks.

16. A) What are the usual locations for Main Fire Pumps on vessels? (3 marks)
B) As per SOLAS, what are the capacity requirements for Main Fire Pumps on cargo ships of different sizes? (7 marks)
17. A) Explain fire alarm and how fire signal should be sounded? (5 marks)
B) What action is to be taken by crew when fire alarm is sounded? (5 marks)
18. Name the various teams in a Ship Organisation during the Fire Emergency situation. Mention the members, duties, functions and muster locations of each team. (10 Marks)
19. Write short notes explaining:
A) Purpose of fire doors (3 marks)
B) Size of fire hose and size and mode of nozzles (4 marks)
C) Purpose of inert gas system (3 marks)
20. A) What all should fireman's outfit onboard be fitted with? (5 marks)
B) As per SOLAS, minimum how many fireman's outfits are required on cargo, passenger and tanker vessels? Where is this outfit stored? (5 marks)
21. What are the different fire classes and how to extinguish each? (10 marks)
22. (a) Draw a neat Sketch of High Pressure Fixed CO₂ Fire Fighting System of Engine Room and Label the Parts (5 Marks)
(b) Explain the Periodic Maintenance, Inspection and Testing carried out on Fire Detection and Alarm Systems (5 Marks)

