

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)

END SEMESTER EXAMINATION DECEMBER 2017

**Programme** : B. Tech. (Marine Engineering) **Semester:** VI  
**Subject Name:** Ship Fire Prevention & Control **Subject Code:** T1601/T2601  
**Date:** 30.12.2017 **Maximum Marks:** 100  
**Time:** 3 Hours **Pass Marks** : 50

---

**PART A**  
**Compulsory Questions**

(3\*10 = 30 MARKS)

1.
  - a) State the significance of Flash Point. State the temperatures of "Safe" and "Dangerous highly inflammable" oils?
  - b) What are the things showed in a Fire Control Plan? State the locations in which it is stored /exhibited and the reason
  - c) State how does "Auto ignition temperature" of fuel and lubricating oil affect safety?
  - d) How does "heating of high viscosity oil" affect safety?
  - e) What are the uses of (i) Remote Emergency Electrical Trips and (ii) Quick Closing Valves? Explain the location and how are they operated?
  - f) Describe a Standard fire Test for A60 Class Division Bulkhead
  - g) State the usual fire alarm used in ship's accommodation and engine room & from where and how it can be activated
  - h) Briefly state about CABA?
  - i) What is a fire damper and where it is fitted?
  - j) Describe an International Shore Connection

**PART B**

**Answer any five of the following eight questions:**

(5\*14 = 70 MARKS)

2. (a) Sketch and describe Combustion Gas Detector heads and its operation  
(b) State the location where there detectors are fitted [10+4= 14]
3. "Fire Control Plan" is one of the requirement to be carried On- Board Ship. State the International Convention under which the plan is made mandatory. With reference to this plan explain the following
  - (a) What all information's are available in this plan ?
  - (b) Which all location it is stored/ exhibited and the reason[8+6= 14]
4. (a) Sketch , describe and label a simplified fire alarm circuit that may be incorporated in a control panel for fire detectors  
(b) State the requirements for Machinery spaces containing Internal Combustion Machinery as

per MERCHANT SHIPPING (FIRE APPLIANCES) RULES

[ 10+4= 14]

5. State the requirements of the following:

- (a) Class A Divisions
- (b) Fire Doors

[ 7+7= 14]

6..a) Fixed fire protection provided for the propulsion motor and generator of diesel electric drive vessel is usually one of the following methods:

- i) Fixed Foam Extinguisher
- ii) Fixed CO<sub>2</sub> System Extinguisher
- iii) Steam Smothering system
- iv) dry chemical powder –briefly state in a comparative analysis how each one of these methods has some disadvantages when used with propulsion system as stated above

b) ) State whether any other alternative arrangements are there , which can also act as emergency fire pump?

[10 +4=14]

7.a) Describe with sketches Bulk CO<sub>2</sub> system as used in on board of a ship.

b) State the required Water Jet capacity the Emergency Fire Pump must be capable to deliver as per regulation

[ 10+4= 14]

8. (a) State and describe an inert gas system for Tankers.

(b) How does the “explosive limits of oil” affect flammability?

[ 10+4= 14]

9. ( a) What is a BA and where and why do we use it on board ?

(b) Why it is called an open circuit system

( c) How do we calculate Normal Working Hours of a BA

[ 6+4+4= 14]

\*\*\*\*\*