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***B.Tech. Degree VI Semester Regular/Supplementary Examination in
Marine Engineering June 2024***

**19-208-0603 SHIP FIRE PREVENTION AND CONTROL
(2019 Scheme)**

Time: 3 Hours

Maximum Marks: 60

Course Outcome

On successful completion of the course, the students will be able to:

- CO1: Understand the fire hazard aboard ships. Fire chemistry and control of A, B and C classes of fire.
 CO2: Explain the fire protection built in ships and SOLAS conventions.
 CO3: Acquire knowledge about fire detection and safety system on cargo ships and Tankers.
 CO4: Illustrate the working of different fire extinguishers and other fighting equipments on a ship.
 CO5: Identify various practical techniques adopted for extinguishing fires in accommodation, machinery spaces, boiler rooms, Cargo holds, galley etc.
- Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 –Analyze,
 L5 – Evaluate, L6 – Create
 PI – Programme Indicators

(Answer **ALL** questions)

(5 × 15 = 75)

		Marks	BL	CO	PI
I.	(a) Write short notes on:				
	(i) Back Draft	2	L1	1	1.3.1
	(ii) Flash over	2	L1	1	1.3.1
	(iii) Advantages and disadvantages of CO2 as a fire extinguishing medium.	2	L1	1	1.3.1
	(b) Describe various fire extinguishing mediums and how they extinguish the fire. Explain application of each type of above extinguishing mediums.	9	L2	1	1.4.1
OR					
II.	(a) Explain limits of flammability and how these can be applied in fire prevention techniques.	9	L2	1	1.3.1
	(b) Describe various stages of fire growth and decay in a compartment.	6	L2	1	1.4.1
III.	(a) Briefly explain SOLAS convention. Explain the fire Safety Objectives and functional requirements as per SOLAS convention.	9	L2	2	1.3.1
	(b) Draw and explain International Shore connection Requirements as per SOLAS convention and FSS code.	6	L1	2	6.2.1
OR					
IV.	(a) Explain the reasons for venting cargo tanks in oil tankers. Describe the primary and secondary means of venting adopted in oil tankers.	9	L3	2	1.4.1
	(b) Explain requirements for preventing Paint Locker fires in a Cargo Ship.	6	L2	2	1.4.1

(P.T.O.)

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		Marks	BL	CO	PI
V.	(a) Explain the fire safety precautions to be taken on an oil tanker.	9	L2	3	6.1.1
	(b) Sketch and describe the working of a Rate of Rise Heat detector.	6	L2	3	1.3.1
OR					
VI.	(a) Compare conventional Fire Alarm System with Addressable fire alarm system with respect to application, advantages and disadvantages.	8	L3	3	3.1.5
	(b) Explain with a sketch, working of an ionization type smoke detector.	7	L2	3	1.3.1
VII.	(a) Sketch and describe a fixed CO2 firefighting system for Engine room fire protection on a cargo ship.	9	L2	4	1.4.1
	(b) Describe the precautions and procedures to be followed for releasing fixed CO2 system to extinguish an engine room fire.	6	L3	4	1.3.1
OR					
VIII.	Write short notes on:				
	i. Portable Dry chemical powder extinguisher	5	L1	4	1.3.1
	ii. Fire man's outfit	5	L1	4	1.3.1
	iii. High pressure water mist system for fire extinguishing.	5	L1	4	1.3.1
IX.	(a) Explain organization of response team for fire fighting on board.	9	L3	5	3.1.5
	(b) Explain the actions required and procedures to be followed for fighting fire in Galley.	6	L2	5	1.3.1
OR					
X.	Write short notes on <i>any three</i> of the following:				
	(i) Fire Signals and Muster.	4	L1	5	1.3.1
	(ii) Special precautions for firefighting in Chemical carriers.	4	L1	5	1.3.1
	(iii) Enclosed Space Entry precautions.	4	L1	5	1.3.1
	(iv) Fire fighting in Ports and drydocks.	3	L1	5	1.3.1

Bloom's Taxonomy Levels

L1 = 28%, L2 = 47%, L3 = 25%.
