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***B.Tech. Degree VI Semester Regular Examination in
Marine Engineering June 2022***

**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

PO – Programme Outcome

		(5 × 15 = 75)	Marks	BL	CO	PO
I.	(a) Write short notes on:			L1	1	1.3.1
	(i) Fire Tetrahedron		2			
	(ii) Spontaneous combustion		2			
	(iii) Importance of Flammability limits on fire control		2			
	(b) Describe the classification of fires and methods of extinguishing each class of fires.		9	L2	1	1.4.1
OR						
II.	(a) Explain the various stages of fire development and decay in a compartment.		9	L2	1	1.3.1
	(b) Explain back draft and the reasons for back draft. State precautions to be taken to prevent the occurrence of back draft.		6	L2	1	1.4.1
III.	(a) Sketch a line diagram of the fire main of a cargo ship and explain each component in the fire main.		9	L2	2	1.3.1
	(b) Briefly explain the SOLAS regulations with respect to emergency fire pumps in cargo ships.		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 the precautions to be taken against shock, fire and other hazards of electrical origin		6	L2	2	1.4.1
V.	(a) Explain the fire safety precautions to be taken on a general cargo vessel.		9	L2	3	6.1.1
	(b) Sketch and describe a dual type fire hose nozzle.		6	L2	3	1.3.1
OR						
VI.	(a) Briefly describe different types of fire detectors fitted on board ships. How are they tested for satisfactory operation?		8	L3	3	3.1.5
	(b) Explain any one of the fire detectors with a neat sketch.		7	L2	3	1.3.1

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VII.	(a)	Sketch and describe a fixed foam fire-fighting system for deck fire protection on oil tankers.	9	L2	4	1.4.1
	(b)	Describe the 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:		L1	4	1.3.1
	(i)	Types, principles and uses of breathing apparatus.	5			
	(ii)	Uses and care of fireman's outfit.	5			
	(iii)	Dry chemical powder portable fire extinguisher, with neat sketch.	5			
IX.		Explain the special precautions to be followed for prevention and fighting of fire on		L3	5	3.1.5
	(i)	Oil tankers	9			
	(ii)	Chemical tankers.	6			
OR						
X.		Write short notes on <i>any three</i> of the following:	(5 × 3)	L1	5	1.3.1
	(i)	Muster list and Fire drill				
	(ii)	Automatic sprinkler head				
	(iii)	Firefighting in port and dry dock				
	(iv)	Precautions to be taken before entering Enclosed spaces				

Bloom's Taxonomy Levels

L1 – 24%, L2 – 47%, L3 – 29%
