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**B. E / B. TECH.DEGREE EXAMINATION, MAY 2023**  
 Eighth Semester  
**MR18022-SPECIAL DUTY VESSEL & TYPE OF OPERATION**  
*(Marine Engineering)*  
**(Regulation 2018)**

TIME: 3 HOURS

MAX.MARKS: 100

- CO1** History of trade of special trade vessels  
**CO2** Cargo operations of oil tankers  
**CO3** About inert gas system and tank washing operations of ships  
**CO4** Cargo operations of chemical tankers, LPG/LNG vessels.  
**CO5** About rule of classification societies for cargo ships and tankers.

**PART- A (10x2=20Marks)**  
 (Answer all Questions)

	CO	RBT LEVEL
1 State the risks involved in carrying coal as cargo in bulk.	1	2
2 Differentiate between panamax size and suezmax bulk carrier?	1	2
3 Define static electricity?	2	2
4 Why ship/shore safety checklist to be duly exercised before each and every cargo operation?	2	2
5 What is the composition of inert gas?	3	2
6 Under which condition the equipment will be considered as intrinsically safe?	3	2
7 Why low expansion foam used as deck fixed firefighting medium in tankers?	4	2
8 Explain the term Re-liquefaction temperature on LNG cargoes?	4	2
9 Illustrate the role/activities of classification society on behalf of IMO and flag?	5	2
10 Out of below survey which is considered as voluntary survey: CAP / CAS survey?	5	2

**PART- B (5x 14=70 Marks)**

	Marks	CO	RBT LEVEL
11(a) Explain in detail the constructional features of bulk carrier?	(14)	1	3
<b>(OR)</b>			
11(b) Write a short note on a) Product tankers b) Gas carriers c) Container vessels.	(14)	1	3
12(a) Describe in detail the ship/shore safety checklist which is followed on cargo operation? Specially emphasize the point which gives attention to check mooring?	(14)	2	3

**(OR)**

<b>12(b)</b>	<b>(i)</b> State the precautions to be taken against static electricity on-board tanker ships?	<b>(4)</b>	<b>2</b>	<b>3</b>
	<b>(ii)</b> Explain the procedure and precautions to be followed in case of major oil spill on cargo manifold?	<b>(10)</b>	<b>2</b>	<b>3</b>
<b>13(a)</b>	<b>(i)</b> With a neat sketch, explain in detail about the pressure vacuum valves?	<b>(10)</b>	<b>3</b>	<b>3</b>
	<b>(ii)</b> Write on short note on segregated ballast tanks SBT?	<b>(4)</b>	<b>3</b>	<b>3</b>
<b>(OR)</b>				
<b>13(b)</b>	With a neat sketch, explain the inert gas plant distribution systems along with component names and usages?	<b>(14)</b>	<b>3</b>	<b>3</b>
<b>14(a)</b>	<b>(i)</b> Enumerate the merits and de-merits of COW washing on oil tankers?	<b>(7)</b>	<b>4</b>	<b>3</b>
	<b>(ii)</b> Write a short note on a) Inerting b)Purging c) Gas freeing.	<b>(7)</b>	<b>4</b>	<b>3</b>
<b>(OR)</b>				
<b>14(b)</b>	Explain in detail the oil record book part 1 with operational code entries? Also state the retention period of ORB to be kept onboard?	<b>(14)</b>	<b>4</b>	<b>3</b>
<b>15(a)</b>	Enumerate the statutory certificates given by classification societies for chemical tanker ship.	<b>(14)</b>	<b>5</b>	<b>3</b>
<b>(OR)</b>				
<b>15(b)</b>	Explain the significance of below listed surveys? a) CAP – Condition assessment program b) CAS – Condition assessment scheme c) ESP – Enhanced survey programme	<b>(14)</b>	<b>5</b>	<b>3</b>

**PART- C (1x 10=10 Marks)**

(Q.No.16 is compulsory)

		<b>Marks</b>	<b>CO</b>	<b>RBT LEVEL</b>
<b>16</b>	<b>(i)</b> Describe the importance of P&A manual procedure for i) Gas freeing ii) Tank cleaning of oil or chemical takers.	<b>(8)</b>	<b>3</b>	<b>4</b>
	<b>(ii)</b> Under which condition the cargo tank will be considered as fully inerted?	<b>(2)</b>	<b>3</b>	<b>4</b>

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