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**B.E / B.TECH. DEGREE EXAMINATION, MAY 2023**

Eighth Semester

**MR18016 – OFFSHORE TECHNOLOGY****(Regulation 2018)****TIME: 3 HOURS****MAX. MARKS: 100**

- CO 1** To impart knowledge on Off shore oil field, off shore installations.  
**CO 2** To impart knowledge on Off shore vessels types and its uses  
**CO 3** To impart knowledge on Difference DP Vessels operation and its main machineries, sensors  
**CO 4** To impart knowledge on DP Trails and test, defect analyzing  
**CO 5** To impart knowledge on Off shore ships safe working, various ships drills, DP operations, DP trails

**PART- A (10 x 2 = 20 Marks)**

(Answer all Questions)

		CO	RBT LEVEL
1.	What are all the primary variables that determine the functional requirement for an Offshore facility?	1	2
2.	Name different types of offshore fixed platform.	1	2
3.	What are the different types of offshore support vessels?	2	2
4.	What is function of offshore function vessels and name its types?	2	2
5.	What are the three subsystem of DP system?	3	2
6.	Define the following 1. Fail safe condition. 2. Redundancy	3	2
7.	Different type of thrusters	4	2
8.	What are the 5 main components in DP systems	4	2
9.	What is hazard. Name some hazards you face on-board	5	2
10.	What do you mean by Fatigue in human element ?	5	2

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

		Marks	CO	RBT LEVEL
11. (a)	(i) Name the different analysis required for design of the template platform.	(7)	1	3
	(ii) How to perform a structural analysis of a platform.	(7)	1	3
	<b>(OR)</b>			
(b)	(i) Explain in detail submersible and semi-submersible platforms	(7)	1	3
	(ii) What is fixed platform, Explain in detail the concept of any two fixed platforms	(7)	1	3

12. (a)	(i)	Discuss the different types of Off-shore construction vessel? Explain their significance.	(7)	2	3
	(ii)	Discuss the functional requirements of PSV.	(7)	2	3
<b>(OR)</b>					
(b)	(i)	Distinguish the different types of off-shore vessels with applications.	(7)	2	3
	(ii)	Briefly explain AHT vessels and its design aspects and additional features.	(7)	2	3
13. (a)	(i)	Explain in detail the Power system and Control system used in DP system.	(7)	3	3
	(ii)	Explain with simple sketch how a thrust system is used in a DP vessel.	(7)	3	3
<b>(OR)</b>					
(b)	(i)	Explain the human element factors in DP system.	(7)	3	3
	(ii)	Briefly explain the different working principles of DP I, II and III vessels.	(7)	3	3
14. (a)	(i)	Explain the redundancy level in each DP class vessels	(7)	4	3
	(ii)	What are the parameters are monitored in Thrusters Monitoring and Alarm control systems	(7)	4	3
<b>(OR)</b>					
(b)	(i)	Explain Taut wire DP reference system with an illustrative sketch.	(7)	4	3
	(ii)	Explain the LASER and differential GPS reference system with illustrative sketch.	(7)	4	3
15. (a)	(i)	What are the drills carried out on board vessel? Explain in detail the procedure for carrying out a fire drill.	(7)	5	3
	(ii)	Sequence your action in the event of fire?	(7)	5	3
<b>(OR)</b>					
(b)	(i)	Enumerate the various risks and hazards that may be faced during an off shore cargo operation.	(7)	5	3
	(ii)	Explain the various systems that are available to make off shore cargo handling efficient and safe.	(7)	5	3

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

(Q.No.16 is compulsory)

			Marks	CO	RBT LEVEL
16.		What is the significance of practicing a safe working culture on board vessels? As a leader, how will you plan for prioritizing the safety of your subordinates and the vessel.	(10)	5	4

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