

INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examination Dec 2019/Jan 2020

B.Tech (Marine Engineering)

Semester -V

UG11T3502- Ship Structure and Construction

Date: 11.12.2019

Max Marks: 70

Time: 3 Hours

Pass Marks: 35

Part – A (Compulsory)

Answer the following - (10x2=20 Marks)

1. What is corrugated bulkhead?
2. What are different types of keels used in ship construction?
3. Which chapter of SOLAS deals with Life-saving appliances and arrangements?
4. What is margin line?
5. What are type A and type B ships?
6. What is the purpose of longitudinal bulkheads in tankers?
7. What is difference between Gross Tonnage and Net Tonnage? What is the relationship between lightship weight, dead weight and ship displacement?
8. List five statutory certificates with their validity period.
9. Explain with a sketch freeboard, rise of floor, flare, sheer and camber.
10. What are margin plate and tank side brackets?

Part – B

Answer any 5 out of 7 questions (5 x 10= 50 marks)

11. (a) Draw transverse section of a typical double hull tanker showing various structural members. (5 Marks)
(b) Discuss the reasons why double hull tankers were introduced in service. What are their advantages and disadvantages? (5 Marks)
12. (a) What is the purpose of watertight bulkheads in ships? What are class A and class B bulkheads? (5 Marks)
(b) Draw the structure of a typical watertight bulkhead. How the plating thickness changes with depth. (5 Marks)

13. (a) Describe the construction of double bottom of a ship. What are solid and bracket floors? (5 Marks)
- (b) Draw the forward part of ship showing collision bulkhead and anchor chain cable arrangement. (5 Marks)
14. (a) What is the purpose of load line? Neatly draw load line markings showing various parameters. (5 Marks)
- (b) How a load line survey is carried out? Who issues the load line certificate? (5 Marks)
15. (a) What is the role of offshore supply vessels? Why diving support vessels are provided with dynamic positioning system? (5 Marks)
- (b) Describe various surveys carried out on ships during first five year period after completion at shipyard. What is harmonized system of survey and certification (HSSC)? (5 Marks)
16. (a) Briefly discuss important stages of ship construction. What is the role of surveyors during construction of a ship? (5 Marks)
- (b) What are various launching methods used in ship construction? (5 Marks)
17. (a) Neatly draw structure of a spade rudder. Why rudder is situated aft of the ship? What is a semi balanced rudder? (5 Marks)
- (b) What is stern frame? What are various types of sterns used in ship construction? (5 Marks)
