

Indian Maritime University
(A Central University, Govt of India)

Sep/Oct'25 SE

Programme Name: DNS

Semester: ONE

Subject Code: UD11T6107

Subject Name: BRIDGE EQUIPMENT & COLREGS.

Date: 08.09.2025

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.
- (iii) Non programmable Scientific Calculator is permitted.

Section A

Following are Ten MCQs/ Fill in the Blanks/ True & False of 01 Mark each – Choose the correct answer as applicable.

1. In Non Follow Up Mode –

- a. Steering can be carried out only from steering gear room
- b. Steering is carried out by liver only
- c. Steering is carried out by hand steering only
- d. Steering can be carried out by either hand steering wheel or liver.

2. Which of the following option is true regarding Speed through Water.

- a. GPS
- b. Appropriate for Collision Avoidance.
- c. Compulsory input in Echo sounder.
- d. All of Above.

3. Course Recorder Takes Input from

- a. GPS
- b. Gyro Compass
- c. VDR
- d. ECDIS

4. When two power-driven vessels are crossing, the vessel which has the other to starboard must keep out of the way, if _____
 - a. She is the faster vessel
 - b. The situation involves risk of collision
 - c. The vessels will pass within half a mile of each other
 - d. Whistle signals have been sounded.
5. Rule 14 describes the action to be taken by vessels meeting head on. Which of the following conditions must exist in order for this rule to apply?
 - a. Both vessels must be power-driven.
 - b. They must be meeting on reciprocal or nearly reciprocal courses.
 - c. The situation must involve risk of collision.
 - d. All of the above.
6. According to the Rules, which vessel is NOT restricted in her ability to manoeuvre?
 - a. A vessel engaged in servicing a navigation mark.
 - b. A sailing vessel.
 - c. A vessel engaged in mine clearance operation.
 - d. A vessel engaged in dredging operation.
7. Auto Pilot must be changed to Hand Steering at least _____
 - a. Once during the voyage
 - b. Once a month
 - c. Once every 24 hours
 - d. Once every watch
8. Rate of Turn Indicator (ROTI) Displays rate of turn in _____
9. A vessel using a traffic separation scheme shall normally join or leave a traffic lane at the _____ of the lane.
10. When Services of Pilot is used in pilotage waters the responsibility for the safety of ship lies with Pilot only. (True / False)

Section B

Five Questions of 02 Marks each

- 11) Explain the causes of errors in Doppler speed log. (2 Marks)
- 12) Define Masthead Light of a vessel (2Marks)

- 13) State the reason for inclination of bridge front window. (2Marks)
- 14) Draw/state the lights And Day Shapes, Exhibited by Fishing Vessel underway. (2 Marks)
- 15) Define the word underway (2Marks)

Section C

Seven Questions of 10 Marks each of which **any 05 questions** to be answered.

- 16 a) Explain the working of Marine Echo sounder with the help of simple Block Diagram. (7 Marks)
- b) Describe the factors that influence the speed of sound propagation in seawater. (3 Marks)
- 17 a) Describe the various indications of Anchor Dragging and State what lights and shapes are exhibited by a Vessel at Anchor. (7 Marks)
- b) Discuss the different communication methods used to call the Master to the bridge of a ship. (3 Marks)
- 18 a) State the use of Sextant and Various Errors of Sextant. (7 Marks)
- b) Describe the purpose of "Off-Course" alarm. (3 Marks)
- 19 a) Explain With the help of neat Diagram the various parts of Magnetic Compass. (5 Marks)
- b) Differentiate the dry and wet card compass. (5 Marks)
- 20 a) List 08 Distress Signals as described in ROR Annex-IV. (5 Marks)
- b) With suitable sketch, explain the lights and shapes of vessel "not under command", making way through water. (5 Marks)
- 21 a) Explain the concept of an adaptive autopilot and state its advantages. (5 Marks)
- b) Describe the procedures for changeover from automatic to manual steering and vice versa. (5 Marks)
- 22 a) What is "Safe Speed" & what are the factors taken into account by all vessels in determining a safe speed? (5 Marks)
- b) Explain the procedure of keeping effective anchor watch? (5 Marks)

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