

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – June 2025

Programme Name: B Sc (NS)

Semester: II

Subject Code: UG21T6204

Subject Name: BRIDGE EQUIPMENT AND COLREGS

Date: 12.06.2025

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted
- (ii) All the Questions are compulsory

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each –
Choose the correct and most appropriate answer as applicable.
All questions compulsory. (10 x 1 mark = 10 marks)

1. Magnetic variation is caused due to _____
 - a) Ship's magnetism
 - b) Alteration of course
 - c) Change in ship's heading
 - d) Earth's magnetism

2. _____ is caused by the horizon glass not being perpendicular to the plane of the instrument

3. If there is sufficient sea room, _____ may be the most effective action to avoid a close-quarters situation
 - a) Alteration of course
 - b) VHF Communication
 - c) Keeping a lookout
 - d) Reduction of speed

4. When proceeding along a narrow channel, vessel should keep to
 - a) Starboard side of channel
 - b) Port side of the channel
 - c) Centre of channel
 - d) Depends upon the traffic

5. Top mark of 2 cones on a buoy indicates the buoy is ---
 - a) Safe Water Mark

- b) Isolated Danger Mark
- c) Cardinal Mark
- d) Special Mark

6. Continuous astern SOG when vessel is anchored indicates

- a) Anchor is holding
- b) Anchor is dragging
- c) Tide is strong
- d) Wind is strong

7. If EM log shows 13 knots and there is a current of 2 knots against you, the speed over ground will be:

- a) 15 knots
- b) 11 knots
- c) 13 knots
- d) None of the above

8. During harbour pilotage the steering normally used is

- a) Autopilot
- b) Hand steering Follow-up
- c) Hand steering Non- Follow up
- d) Emergency steering

9. Change over from hand steering to auto pilot and vice versa has to be done by/under the supervision of:

- a) Pilot
- b) Master
- c) Helmsman
- d) Duty Officer

10. During day time, the visibility of light signals emitted by daylight signalling lamps should be at least:

- a) 1 Nautical mile
- b) 2 Nautical miles
- c) 3 Nautical miles
- d) 4 Nautical miles

Section B

All questions compulsory.

All Questions carry equal Marks (5 x 2 marks = 10 marks)

- 11. Name three Adjustable and three Non- Adjustable Errors of a sextant.
- 12. Describe the various methods to call the Master to the bridge
- 13. Explain the principle and basic working of Doppler log.
- 14. Describe Integrated Bridge System (IBS) in brief.

15. Explain the navigational lights shown by a power driven vessel, length 100m, underway, and if her Engines fail and vessel stopped, what lights to be shown.

Section C

All questions compulsory.

All Questions carry equal Marks (5 x 10 marks = 50 marks)

16. a) How does the Electromagnetic Log measure the ship's speed (5)
- b) Describe Basic working principle of an Echo Sounder. (5)
17. a) Briefly explain the working of Course Recorder (5)
- b) List any ten instruments in the wheelhouse used for safe navigation. (5)
18. a) What is the difference of IALA Buoyage System A and B? (4)
- b) Explain the 5 marking system used in IALA Buoyage system. (6)
19. Explain what is meant by a safe speed under COLREGS, and factors to be taken into account in determining a safe speed by every vessel, including vessels with operational RADAR. (10)
20. a) What are the Tests required for a Steering System prior sailing. (5)
- b) Explain the principle of Auto Pilot and its various steering Modes (5)

