

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

**Mar/Apr'26 SE**

**Programme Name: B Sc (NS)**

**Semester: 2**

**Subject Code: UG21T6204**

**Subject Name: BRIDGE EQUIPMENT AND COLREGS**

Date: 20.03.2026

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.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

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

1. Alteration of course  
2. VHF Communication  
3. Keeping a lookout  
4. 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

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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. No-1, The lubber's line on a magnetic compass indicates \_\_\_\_\_.

- a) Compass north
- b) The direction of the vessel's head
- c) Magnetic north
- d) A relative bearing taken with azimuth circle

### **Section B**

Five Questions of 02 Marks each

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 "Term Vessel not under command"

14. What are three ways to confirm that the vessel at anchor is not dragging anchor?

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

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### Section C

Five Questions of 10 Marks each.

16. a) How does the electromagnetic log measure the ship's speed (5)  
b) With a simple Block diagram describe the function of the main components of echo sounder (5)
17. a) State the different correctors and their purpose to compensate for deviation in a magnetic compass(5)  
b) List any ten instruments in the wheelhouse used for safe navigation. (5)
18. a) Describe Clear View Screen used on board in bridge.(5)  
b) What is the difference of IALA Buoyage system A and B? Explain the 5 marks used in Buoyage system.(5)
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 as per SOLAS. (5)  
b) what are the log book entries to be made in port(5)
- TMI
- TMI
- TMI
- TMI
- TMI
- TMI
- TMI
- TMI

