

INDIAN MARITIME UNIVERSITY
(A Central University, Govt. of India)
End Semester Examination – June 2026
Programme: B Sc [Nautical Science]

Semester: II

Subject Code: UG21T6204

Subject Name: Bridge Equipment and COLREGS

Date: 08.06.2026

Max Marks: 70

Time: 3 Hrs

Pass Marks: 35

General Instructions

1. All Sections (A, B & C) are compulsory.
2. Draw neat diagrams wherever necessary.

Section A

Answer all ten question (10 x 1 mark = 10 Marks)

1. Integrated Bridge System (IBS) is primarily intended to:

- a) Eliminate manual navigation
- b) Integrate navigational aids into a unified system
- c) Control propulsion machinery
- d) Replace steering gear

2. A sextant is used to measure the:

- a) Distance between two objects
- b) Angular distance between two objects
- c) Speed of the vessel
- d) Depth of water

3. The horizon mirror in a sextant is:

- a) Fully silvered

b) Half silvered and half transparent

c) Fully transparent

TMI d) Fixed to the index arm *TMI*

4. Compass deviation is caused by:

a) Earth's magnetic variation

b) Ship's magnetic field

c) Atmospheric pressure

d) Sea currents

5. An Echo Sounder determines depth by:

a) Measuring pressure

b) Timing reflected sound pulses

c) Using radio waves

d) Measuring temperature

6. An Electromagnetic Speed Log measures the vessel's:

a) Speed over ground

TMI b) Speed through water *TMI*

c) Speed relative to wind

d) Acceleration

7. The steering gear is used to:

a) Control engine revolutions

b) Turn the rudder to alter heading

c) Measure course

d) Indicate position *TMI* *TMI*

8. As per COLREGS, Rule 6 refers to:

a) Lookout

b) Safe speed

c) Risk of collision

TMM d) Action to avoid collision

9. According to COLREGS, Rule 9 deals with:

a) Overtaking

b) Action to avoid collision

c) Narrow channels

d) Sound signals

10. Cardinal marks indicate:

a) Channel boundaries

b) Isolated danger

c) Direction of safe water

d) Anchorage areas

Section B

Answer all five questions (5 × 2 = 10 Marks)

TMM 11. What is the purpose of an Engine Telegraph?

12. State the use of Rate of Turn Indicator?

13. Define "Risk of collision" as per COLREGS.

14. State the purpose of maintaining a ship's logbook.

15. When must a combination ladder arrangement be used for a pilot?

Section C

Answer all the five questions (5 × 10 marks = 50 Marks)

TMM 16. (a) With the aid of a neat sketch, describe the general layout of a ship's bridge (wheelhouse). (4 marks)

(b) Explain the function of any three important navigational instruments fitted on the bridge. (6 marks)

17. (a) Name at least 5 parts of a Sextant (5 marks)

(b) Name at least 5 Errors of a Sextant (5 marks)

18. Explain the working principle of an Echo sounder and its uses. State its limitations and sources of errors.

19. Explain the functions working and modes of a ship's steering gear system. What is the procedure for changeover to emergency steering?

20. Explain the following COLREGS Rules with examples:

(a) Rule 10 – Traffic Separation Scheme (5marks)

(b) Rule 13 – Overtaking (5marks)
