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

Mar/Apr/26 SE

Programme Name: DNS

Semester: I

Subject Code: UD11T6107

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 of 01 Mark each – Choose the correct answer as applicable.

1. Own ship's course is 225 (T). Variation is 2 deg W, Deviation is 4 deg E. The course to steer by Magnetic Compass in case of a Gyro failure would be:-

- a) 221
- b) 223
- c) 225
- d) 227

2. Index error in a Sextant occurs when the

- a) Index and horizon mirrors are not parallel to each other, when the index arm is set to zero degree.
 - b) Index and horizon mirrors are not parallel to each other, when the index arm is set to 60 degrees.
 - c) Index and horizon mirrors are not parallel to each other, when the index arm is set to 90 degrees.
 - d) None of the above
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3. By day, the visibility of light signals emitted by the Day Signaling Lamp (Aldis lamp) shall be at least

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

4. The most commonly used binoculars are of the following 'magnification' and 'objective lens diameter':-

- a) 7 x 50
- b) 7 x 35
- c) 8 x 25
- d) 8 x 50

5. All vessels must test the emergency steering system every

- a) 1 month
- b) 2 months
- c) 3 months
- d) 6 months

6. When at sea, the OOW must shift from auto steering to manual steering and steer by hand

- a) At least once every watch
- b) Every six hours
- c) Every twelve hours
- d) Every twenty-four hours

7. Rule 11 to 18 of International Regulations for Preventing Collisions at Sea (IRPCS) govern conduct of vessels

- a) In any condition of visibility
 - b) In sight of one another
-

c) In Restricted Visibility

d) None of the above

8. When two Power Driven Vessels are approaching on reciprocal or nearly reciprocal courses so as to involve risk of collision, then

a) Each shall alter her course to starboard, so as to pass on the port side of the other

b) Each shall alter her course to port, so as to pass on the starboard side of the other

c) the vessel which has the wind on the port side, shall keep out of the other vessel

d) the vessel which has the wind on the starboard side, shall keep out of the vessel

9. Ships normally monitor their position in an Anchor Berth by using

a) Beam Bearings

b) Radar

c) GPS

d) All of the above

10. An indication of anchor dragging could be

a) Ship moving outside its designated swinging circle

b) Vibrations felt on the anchor chain and hull

c) Changes in beam bearings

d) All of the above

Section B

Five Questions of 02 Marks each

11. List any four markings which one should make on the Course Recorder Paper.

12. State the difference between ground reference speed and water reference speed.

13. How is Non-Follow Up Mode of Steering different from Follow Up Mode of Steering.

14. Describe the 'Responsibility' to comply with these rules as set out in Rule 2 of IRPCS(COLREG).

15. What is the major difference in Buoyage System being followed between System A and System B.

Section C

Five Questions of 10 Marks each.

16a. Name any 10 navigation equipment which are found on the ship's bridge (wheel house) and mention their use in brief. (05 Marks)

16b. Draw a diagram with the binnacle and arrangement of correcting devices provided in a Magnetic compass onboard a ship and name its parts. (05 Marks)

17a. Explain principle and limitations of Doppler Speed Log. How does Janus configuration overcome limitations of Doppler Speed Log. (05 Marks)

17b. Draw a simple block diagram of an echo sounder and state the function of its main components. (05 Marks)

18a. Explain the working principle of an auto pilot system. (03 Marks)

18b. List 06 manual settings on the auto pilot and what are their functions. (03 Marks)

18c. What is the purpose of Wheel House Posters? List 04 contents of the Wheel House Posters. (04 Marks)

19a. Explain what is meant by Safe Speed and factors which need to be taken into account in determining safe speed, as laid down in Rule 6 of IRPCS. (05 Marks)

19b. What are the rules regarding conduct of vessels in restricted visibility as laid down in Rule 19 of IRPCS. (05 Marks)

20a. List the entries which the OOW should make in the Deck Log Book when keeping a Navigational watch at Sea. (05 marks)

20b. Explain the pilot boarding arrangement as per 'SOLAS'. (05 Marks)
