

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

**Supplementary Examinations – September/October 2024**  
**Programme Name: BSc (NS)**

**Semester: 3**

**Subject Code: UG21T5306**

**Subject Name: Bridge Equipment & Watch Keeping I**

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Date: 24.09.2024	Max Marks: 70
Duration: 03 Hrs	Pass Marks: 35

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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. Daylight signalling lamps should be provided with a ----- in addition to ship's power supply.

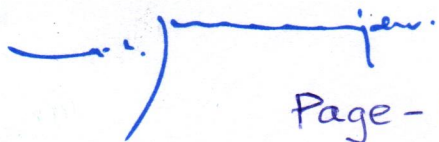
- a) Portable power generator
- b) Portable battery
- c) Emergency generator
- d) Main power supply

2. Following equipment is not recommended to be used in restricted visibility.

- a) Clearview screen
- b) Binocular
- c) Auto pilot
- d) RADAR

3. Index and horizon mirrors in sextant are not parallel to each other when the arm is set to zero degree. The error caused is -----

- a) Error of collimation

  
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- b) Index error
  - c) Side error
  - d) Error of perpendicularity
4. The ship's course recorder does not involve in \_\_\_\_\_
- a) telling the mate on watch how well the helmsman or autopilot is steering.
  - b) Keeping a record of all gyro courses steered.
  - c) The record of which can be used as evidence in the court of Law.
  - d) Steering of the vessel.
5. Master's standing orders are available for \_\_\_\_\_
- a) Navigation of the vessel
  - b) Engine operations
  - c) Cargo watch
  - d) Emergency operation of life boats
6. When the Pilot is on board, who is in charge of the conduct of vessel?
- a) The Pilot himself.
  - b) The OOW.
  - c) The Master of the vessel.
  - d) The helmsman.
7. The Magnetic compass is located on \_\_\_\_\_
- a) Bridge wing
  - b) Wheel house
  - c) Monkey island
  - d) Crow nest
8. Position of the rudder is shown on the bridge by the,
- A) Rudder angle indicator
  - B) Anemometer
  - C) Rate of turn indicator
  - D) Course recorder
9. Log book entries at sea is made at \_\_\_\_\_
- a) Commencement of the 4 hours watch.
  - b) End of the 4 hours watch.
  - c) Whenever the OOW feels appropriate.
  - d) Before sign off of the OOW.
10. When is a lookout permitted to leave his station \_\_\_\_\_

- a) at the end of the watch.
- b) 15 minutes before the end of the watch.
- c) only when properly relieved by another lookout man.
- d) at any time.

### **Section B**

Five Questions of 02 Marks each

- 11. Explain in brief the Integrated Bridge System.
- 12. Describe the follow-up system of steering on a ship.
- 13. State the difference between ground reference speed and water reference speed.
- 14. Describe the physical factors which affect the velocity of sound in seawater.
- 15. What is meant by an adaptive automatic pilot.

### **Section C**

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

- 16a) Sketch and explain the principle of Sextant. (05 Marks)
- 16b) Explain the circumstances in which the Officer on Watch (OOW) should call the Master. (05 Marks)
- 17 a) Explain Janus configuration transducer system in Doppler log and why it is necessary. (05 marks)
- 17 b) What are the principles for keeping an effective anchor watch? (05 marks)
- 18 Explain the principle and working of an echo sounder identifying all the components and controls and their individual functions. (10 marks)
- 19 a) Explain the principle of an Autopilot system and the points to keep in mind while operating the system (5 Marks)
- 19 b) List the procedure for handing over and taking over bridge watch. (5 marks)

- 20a) What are the duties of a Lookout person on bridge. (05 Marks)
- 20b) State the Navigation duties of the OOW with Pilot embarked. (05 Marks)
- 21a) Explain Rate of turn Indicator and state its use on board ship. (04 Marks)
- 21b) Describe the operation of the course recorder. (06 Marks)
- 22) Explain the Pilot transfer arrangement as per SOLAS. (10 Marks)

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