

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – June 2023
Programme Name: B Sc (NS)
Semester: Five
Subject Code: UG21T4506

Subject Name: BRIDGE EQUIPMENT & WATCHKEEPING PAPER - II

Date: 22.05.2023

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.
- (iii) Scientific Calculator is permitted.
- (iv)** (Radar Plotting sheets, will be supplied by the **Examination Centre**)

Section A

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

1. The purpose of Ship Security Alert System is

- a) a measure for preventing the conflict between two or more nations.
- b) a measure for preventing the conflict between the ship's crew.
- c) a safety measure for strengthening ship's security and subduing acts of piracy and/or terrorism against shipping.
- d) None of the options.

2. S.A.R.T is used for

- a) Satellite Acquisition.
- b) Search & Rescue at sea.
- c) finding the depth of the sea.

d) finding the oil in sea bed.

3. Parallel indexing technique is used on

a) Echo Sounder.

b) Marine Radar.

c) Speed Log

d) GPS.

4. In Marine Radar what stores the energy received from power source.

a) Delay line

b) Trigger unit

c) Modulator

d) Magnetron

5. What is second trace echo's w.r.t Marine Radar.

a) all of the options.

b) are echoes received from a contact at an actual radar range setting.

c) are echoes received from a contact at an actual range lesser than the radar range setting.

d) are echoes received from a contact at an actual range greater than the radar range setting.

6. What is the use of ICS Bridge procedures guide.

a) is used for guidance to dock the ships.

b) The Bridge Procedures Guide is widely used as the principal industry guidance on safe bridge procedures, and is used by Masters, watchkeeping officers, companies and training institutions worldwide.

c) is widely used for constructing the bridges over water.

d) None of the options.

7. A Doppler log in the volume reverberation mode indicates.

- a) Speed through the water.
- b) Speed being made good.
- c) The set of the sea current being experienced.
- d) The depth of the water.

8. Marine Radar has performance monitoring for

- a) producing a visual indication upon the radar display screen only when the radar transmitter power, and the radar receiver sensitivity and tuning are within predetermined limits.
- b) finding how old the radar set is.
- c) finding the history of use of the radar set.
- d) finding the repairs carried out on the radar set during its lifetime.

9. The minimum requirement for a BNWAS under International Maritime Organization standards is to have a dormant stage and three alarm stages, except that on a non-passenger vessel,

- a) the second stage may be omitted.
- b) the dormant stage may be omitted
- c) the third stage may be omitted.
- d) the first stage may be omitted.

10. The Long-Range Identification and Tracking (LRIT) system provides for the global identification and tracking of ships to

- a) enhance security of shipping and for the purposes of safety and marine environment protection.
- b) enhance the performance of the engine.
- c) enhance the performance of the crew.
- d) enhance the movement of the ship in rough sea.

Section B

Five Questions of 02 Marks each. SHORT ANSWER TYPE QUESTIONS

11. Define wheel over position in Radar Navigation
12. Define heeling error effect.
13. Describe World Geodetic System 1984 (WGS 84)
14. What is Augmented Satellite systems of GPS.
15. List the contents of ICS Bridge Procedures Guide.

Section C

Answer five out of seven questions. (10 Marks Each)

16. Own ship is on a course of $330^{\circ}(T)$ at a speed of 09 knots. (10 marks)

Target Data

Time	Bearing	Range
1900	$009^{\circ}T$	10.5 NM
1905	$008.5^{\circ}T$	9.5 NM
1910	$008^{\circ}T$	8.7 NM

Report the target to the OOW with – CPA, TCPA, Course and speed of the target and aspect at 1910 Hrs.

- 17a. How can 'Radar overlay' improve Navigation at sea. (05 Marks)
- 17b. Explain SSAS and write down its objective. (05 Marks)
18. Explain the working of E-Loran with the help of a block diagram. (10 Marks)
- 19a. Explain the Method of obtaining a table of deviations at Sea. (05 Marks)

19b. What preparations will you carry out for arrival port as per Bridge Procedure Guide. (05 Marks)

20a. State the limitations of AIS. (05 Marks)

20b. State the two main properties of free gyroscope with an example for each. (05 Marks)

21a. Describe the details of data recorded on VDR. (05 Marks)

21b. Explain how a Bridge Navigation watch Alarm System [BNWAS] works? (05 Marks)

22a. State the Principles to be observed while keeping a safe navigational watch. (05 Marks)

22b. What precautionary actions will you take on receiving a storm warning at sea. (05 marks)

