

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2022
Programme Name: B Sc (NS)
Semester: Five
Subject Code: UG21T4506

Subject Name: BRIDGE EQUIPMENT & WATCHKEEPING PAPER - II

Date: 19.12.2022

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.

1. Range discrimination & Bearing discrimination are.
 - a) Radar limitations.
 - b) Radar interference.
 - c) Radar targets.
 - d) Radar glitches.

2. What is GNSS stands for.
 - a) Global Navy Satellite System.
 - b) Global Navigation Satellite System.
 - c) Global New Satellite System.
 - d) None of the options.

3. Coefficient D of a magnetic compass is
 - a) Semi-circular.
 - b) Constant.
 - c) Quadrantal.

d) None of the options.

4. Ship security alert system is required on board as per

- a) Marpol
- b) STCW code.
- c) ISPS code.
- d) IMDG code.

5. The purpose of Bridge Navigation Watch Alarm System is

- a) to monitor bridge activity and detect operator disability which could lead to marine accidents.
- b) to monitor if any pirate boats are approaching the vessel.
- c) to monitor the targets in the vicinity of the own vessel.
- d) to monitor and control the cargo operation.

6. The purpose of VDR is

- a) to maintain the course & speed of the vessel.
- b) to maintain discipline on board the ship.
- c) to maintain the standard of the vessel.
- d) to maintain and store the information in a secure and retrievable form, concerning the position, movement, physical status, command and control of a vessel over the period leading up to and following an incident.

7. 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.

8. ARPA gives information of the target acquired, namely

- a) CPA
- b) TCPA
- c) Bearing
- d) All of the options.

9. Parallel indexing is

- a) Parallel indexing is a technique used as a measure to monitor the progress of a vessel on the track and to minimise the cross track

distance and to keep vessel at a safe distance from the shoreline or rock.

- b) an art of parallel parking of the vessel in port.
 - c) is the manoeuvre to bring the vessel alongside another vessel.
 - d) All of the options.
10. What is the purpose of LRIT on board ship.
- a) to provide information about target ships in the vicinity.
 - b) to provide information about the coastal state through which you are passing.
 - c) to provides for the global identification and tracking of ships to enhance security of shipping and for the purposes of safety and marine environment protection.
 - d) to provide information about the port you are making.

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 a small coaster of small draft on a course of $217^{\circ}(T)$ at a speed of 12 knots. (Use Radar Plotting Sheet)
(10 Marks)

Target Data

Time	Bearing	Range
0020	$170^{\circ}T$	12.0 NM
0032	$169^{\circ}T$	9.4 NM

Report the target to the OOW with – CPA, TCPA, Course and speed of the target and aspect at 0032 Hrs

17a. How can Radar overlay improve Navigation at sea.
(05 Marks)

17b. Explain SSAS and its purpose.
(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 BPG
(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. Give the details of data recorded on VDR.
(05 Marks)

21b. Explain how a Bridge Navigation watch Alarm System 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)