

**Indian Maritime University**  
**(A Central University, Govt. of India)**  
**End Semester Examinations – June 2023**  
**Course: DNS Semester: Second**  
**Subject Code: (UD11T5202)**  
**Subject Name: Navigation IV: Advanced Bridge Equipment,**  
**Watch-Keeping and Meteorology**

Date: 02.06.2023

Max Marks: 70

Duration: 03 hrs.

Pass Marks: 35

**General Instructions**

- (i) All Sections (A, B & C) are to be attempted. Choices if any will be mentioned in the respective section.
- (ii) Non-programmable Scientific calculators permitted.

**Section A**

**Answer all the questions**  
**(10 X 1mark = 10 marks)**

**State True or False, fill in the Blanks and choose the correct answer**

1. In Radar the purpose of gain control is amplification of weak echoes  
(True/False)
2. Range discrimination is the ability of the Radar to distinguish between two Targets on the same range but different bearings (True/False)
3. In GPS pseudo range arises because user clock is not synchronised with Satellite clock (True/False)
4. When services of Pilot is used in pilotage waters the responsibility for the Safety of the ship lies with Pilot only (True/False)
5. Every vessel which is directed to keep out of the way of another vessel is called the stand on vessel (True/False)
6. A calm central area of lowest pressure at the centre of a TRS is called \_\_\_\_\_
7. Coriolis force is caused due to \_\_\_\_\_
8. A vessel at anchor uses which sound signal to give warning of her position to an approaching vessel?
  - a. One short, one prolonged and one short blast
  - b. Continuous ringing of the bell
  - c. One prolonged, two short blasts

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d. Four or less short blasts

9. The day signal cylinder is used by

- a. A vessel not under command
- b. A vessel constrained by her draft
- c. A vessel aground
- d. A vessel engaged in mine clearance

10. Which of the following is not a ship reporting system?

- a. INSPIRES
- b. AMVER
- c. AUSREP
- d. FISHREP

**Section B**  
**Answer all the Questions**

**Five Questions of 02 Marks each**

**(5 X 2 marks = 10 marks)**

Write short notes on the following:

- 11. DGPS
- 12. VDR
- 13. Composition of a Bridge team under different manning levels?
- 14. Radiation Fog
- 15. Buys Ballot's law

**Section C**  
**Answer any five out of seven questions.**  
**(5 X 10 marks = 50 marks)**

16. Explain the basic working of Marine Radar with block diagram **(10 marks)**

17. What are the three segments of GPS? Explain briefly the function of  
Each segment. **(10 marks)**

- 18.
- (a) List out the circumstances under which you must call the Master to Bridge during your Navigational watch keeping **(5 marks)**
  - (b) Explain watch keeping in restricted visibility **(5 marks)**

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19. List out the various Distress signals as described in Rule-37 and Annex IV of The Colreg's **(10 Marks)**
20. Describe the four ways in which clouds are formed **(10 Marks)**
- 21.
- a. Explain Katabatic and Anabatic Winds **(5 marks)**
  - b. State and describe the Warning signs of an Approaching TRS **(5 marks)**
- 22.
- a. What is the purpose of BNWAS? Explain the various stages of alerting. **(5 marks)**
  - b. Compare and contrast AIS and LRIT **(5 marks)**

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