

**Indian Maritime University**  
**(A Central University, Govt of India)**  
**End Semester Examinations – December 2022**

**Programme Name: DNS**

**Semester: 2**

**Subject Code: UD11T5202**

**Subject Name: Navigation IV: Advanced Bridge Equip, Watch-Keeping and Meteorology**

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Date: 13.12.2022

Max Marks: 70

Duration: 02 Hours

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.
- (iii) Scientific Calculator is permitted.

**Section A**

Following are Ten MCQs /True-False Objective Questions – Choose the correct answer. ( 10x1 = 10 marks)

1. Which of the following is not a form of Precipitation?

- A) Hail B) Sleet C) Mist D) Snow

2. Rime is formed \_\_\_\_\_ .

- A. All around an object.
- B. Only on leeward side of an object
- C. On an object at room temperature
- D. On windward side of an object

3. Auto Pilot must be changed to Hand Steering at least

- A. Once during the voyage
- B. Once a month
- C. Once every 24 hours
- D. Once every watch

4. NavIC is the GNSS system of

- A. China
- B. Japan
- C. Russia
- D. India

5. \_\_\_\_\_ are usually seen in the winter and indicate fair, but cold, weather. In the tropics, they may indicate an approaching hurricane.

- A. Cc
- B. Ci
- C. Ac
- D. Cs

6. On a Beaufort Scale, BF 3 corresponds to \_\_\_\_\_

- A. Moderate breeze
- B. Light breeze
- C. Gentle breeze
- D. Fresh breeze

7. When determining risk of collision, if there is any doubt, it \_\_\_\_\_.

- A. Shall be deemed to exist
- B. May exist
- C. Does not exist
- D. Should be confirmed with other vessel on VHF

8. In a narrow channel or fairway, if a vessel intends to overtake from Starboard-side, following signal(s) to be sounded to indicate the intention to vessel being overtaken.

- A. One short blast
- B. Two short blasts
- C. Two prolonged and one short blasts
- D. Two prolonged and two short blasts

9. CPA in Radar means Closest Point Applied (True / False)

10. The westernmost longitude reached by a TRS before recurving away from its predicted path is called a Vortex. (True/ False)

## Section B

### SHORT ANSWER TYPE QUESTIONS

11. Write briefly about the LRIT information that is received by various parties. **(2 Marks)**
12. Name at least six log books that are maintained on the bridge. **(2 marks)**
13. Explain the use of RADAR in context of Colregs rule 5, Look-out. **(2 marks)**
14. Explain **Col** in brief. **(2 marks)**
15. Name six major cold currents located in different ocean regions. **(2marks)**

## Section C

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

16. Describe the organizational structure of the bridge team with their roles in short and enumerate the Factors for Navigational watch composition **(10 marks)**
- 17a. Explain visibility and how it is judged at sea and logged. **(5 marks)**
- 17b. Explain the working of DGPS with a suitable sketch **(5 marks)**
18. Explain with a suitable sketch that a potential collision situation with vessels in sight of each other can be divided into four different stages. **(10 marks)**
- 19a. Explain the bridge duties associated when restricted visibility is expected **(5 marks)**
- 19b. With suitable sketches explain a vessel which is restricted in her ability to Manoeuvre will exhibit (except mine clearance vessels). **(5 marks)**
20. Course 308 deg speed 14.0 kts. Line of waves indicated the wind direction as 022 deg and anemometer bridge display showed wind speed as 18 kts.
  - (a) State what entries are to be made in the ship's log-book with respect to wind direction & speed.
  - (b) Also indicate in which direction a ball of paper thrown, will blow. **(5x2=10)**
- 21a. Explain the factors affecting RADAR detection. **(5 marks)**
- 21b. Explain Stationary front with a proper diagram. **(5 marks)**
- 22a. With a suitable sketch explain Rule of 1-2-3 with respect to TRS. **(5 marks)**
- 22b. State the purpose and concept of BNWAS **(5 marks)**

