

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – June 2023
Programme Name: B Sc (NS)
Semester: IV
Subject Code: UG21T5405
Subject Name: 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.
- (ii) Options, if any, are specified in respective section.

QP setters to specify the following as applicable:-

- (iii) **Ships Weather Code to be provided**
- (iv) Chart Work Booklets to be used.
- (v) Any other tables/charts to be used.

Section A

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

1. What is the westernmost longitude reached by the TRS center at the time of re-curling called as?
 - a. Vortex
 - b. Vertex
 - c. Cod
 - d. Trough

2. What among the following are the objectives of the World Meteorological Organization:
 - a. To facilitate the exchange of weather information across national borders
 - b. To provide the framework for international cooperation at a global scale on meteorological issues
 - c. To be the United Nation Organizations authoritative voice on the state and behaviour of the Earth's atmosphere
 - d. All of the above

3. What is Frost Point?
 - a. The freezing point of water
 - b. When the Dew Point temperature falls below freezing point it is termed as Frost Point
 - c. The temperature at which supercooled water freezes
 - d. It is the same as Dew Point

4. What are the Doldrums?
 - a. The permanent low pressure area over the equator
 - b. The permanent high pressure area over the equator
 - c. The permanent low pressure area between the tropics
 - d. The permanent high pressure area between the tropics

5. How is the tidal range on the days of Spring tide?
 - a. Tidal range is maximum
 - b. Tidal range is minimum
 - c. Tidal range is exactly at the mean average for the month
 - d. Neither Spring nor Neap tides influence the tidal range

6. The curved vertical lines on a Barograph chart paper:
 - a. Have a curvature which depends on the speed of the drum rotation
 - b. Have exactly the same radius of curvature as the diameter of the rotating drum
 - c. Have exactly the same radius of curvature as the pen arm
 - d. Have exactly the same radius of curvature as the radius of the rotating drum

7. A cold Front on a synoptic chart is indicated by _____

8. What are Weather Analysis Charts?
 - a. Charts showing the existing weather situation at the preceding synoptic hour
 - b. Charts showing the predicted weather situation for a specified future time
 - c. Charts showing the existing weather situation at the preceding additional synoptic hour
 - d. Charts showing the predicted weather situation for the next 24 hours

9. What is the cause of the formation of Advection fog off Newfoundland coast?
 - a. The moisture laden winds of the Southwest monsoon
 - b. The convergence of the Gulf Stream & the Labrador current
 - c. The large amounts of water vapour near the equatorial regions
 - d. The extremely cold weather in the Newfoundland

10. Which type of icebergs have an irregular shape with pinnacle shaped tops?
 - a. All icebergs irrespective of their origin
 - b. Only icebergs of Antarctic origin
 - c. Icebergs of ice shelf origin

d. Icebergs of glacier origin

Section B

Five Questions of 02 Marks each.

11. State the properties of water vapour in the atmosphere
12. List out the methods of estimating visibility at sea
13. What is the difference between waves & swell
14. Write down about the weather associated with Col
15. Define air mass

Section C

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

16. Describe both the Monsoon regime of the Indian sub-continent (10 marks)
17. Code the following ship's report: Ship: KCMK, Position: 00° 05'N 46°58'E, Course made good past three hours: 170° at 10 knots, GMT: 16d 00h 20m, Wind: 052° estimated at 10 knots. Visibility: 500 metres, Pressure 1008.8 mb, Tendency + 3.6 mb, Barograph trace: ----- Temperature: Dry 28.5°C, Wet 23.0°C, Sea 20.6°C. Clouds: Sky overcast with a few blue patches. Low clouds 4 oktas, base 600 metres above sea, Cu of strong vertical extent, Ac in a chaotic sky, Cc. Present weather: Visibility poor due to dust in suspension in the air, not raised by wind at or near ship. Past weather: Thick haze, thunderstorm. Sea: Period 04 seconds, height 0.4 metres. Swell: From 270°, Period 08 seconds, height 04m.
(10 marks)
18. a) Describe the various sources of weather information available to ships
b) List the weather information available on a synoptic chart
(5+5 = 10 marks)
19. Sketch & label a developed TRS in Southern Hemisphere (10 marks)
20. a) List out any 5 different ocean currents & name the region where they are
b) How are ocean currents classified as warm & cold
(5+5 = 10 marks)
21. a) Explain the formation of a Fog
b) Describe the procedure for finding Relative Humidity
(5+ 5 = 10 marks)

22. Define

- a) Mist
- b) Water vapour
- c) Saturated air
- d) Absolute Humidity
- e) Latent Heat

(2 x 5 = 10 marks)

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Tolani