

***Candidate's Name:***

***Ports and Maritime Organization  
Examination and Certification Directorate***

**Exams Code: CMME**

**Subject: Meteorology**

**Rank : Chief Mate (GT $\geq$ 3000)**

**Date:**

**Time allowed: 2.5 Hrs**

**Pass mark: 50**

- Q.1)*** With reference to the TRS, state;
- a) Regions and seasons of greatest frequency.
  - b) Conditions associated with its formation.
  - c) Factors which affect its future movement.
  - d) Factors associated with its decay.

**(5 Marks each)**

- Q.2)*** State the factors affecting visibility and explain in details, areas, season and reasons for occurrence of advection fog.

**(20 Marks)**

- Q.3)*** Explain following ice terms;

- a) Glacier.
- b) Ice shelf.
- c) Ice blink.
- d) Fast ice.

**(5 Marks each)**

- Q.4)*** Discuss the effect of wind in producing ocean currents and describe how the surface current produces a current in the subsurface water.

**(20 Marks)**

- Q.5)*** a) Discuss the formation of waves. **(10 Marks)**
- b) What are the modification to a deep water wave when enters shallow water. **(5 Marks)**
  - c) What are the wave groups and explain how the waves travel. **(5 Marks)**

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***Q.1)*** Your vessel is located in the lower left hand navigable quadrant of a TRS in the North Atlantic Ocean;

- a)*** - Describe the weather that is likely to be experienced at your position at that time and what other factors would indicate the presence of a TRS. **(10 Marks)**
- b)*** - Explain the possible direction of movement of the TRS and its approximate speed of movement. **(5 Marks)**
- c)*** - What action would you take to make safe and speedy passage to a port situated on the North Western side of the center of TRS? **(5 Marks)**

***Q.2)*** - Explain in details the theories for the formation of precipitation. **(20 Marks)**

***Q.3)-*** Briefly describe on followings:

- a)*** The signs of ice berg area. **(5 Marks)**
- b)*** Dangers of sailing in ice and ice berg areas. **(8 Marks)**
- c)*** Dangers of accumulation of ice on ship. **(7 Marks)**

***Q.4)*** - Explain in details with specific examples the main causes of ocean currents. **(20 Marks)**

***Q.5)*** - On attached chartlet of the North Atlantic Ocean, plot;

- a)*** Ocean currents. **(5 Marks)**
- b)*** Pack ice limits. (For the month of March) **(5 Marks)**
- c)*** Iceberg limits (March) (excluding exceptional bergs). **(5 Marks)**
- d)*** Areas where fog may be expected on at least 5 days per month. **(5 Marks)**