

**INDIAN MARITIME UNIVERSITY**  
(A CENTRAL UNIVERSITY GOVERNMENT OF INDIA)  
**DIPLOMA IN NAUTICAL SCIENCE**  
**SEMESTER – I**  
**NAVIGATION – II: BRIDGE EQUIPMENT, WATCHKEEPING &**  
**METEOROLOGY (UD11T3105)**

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**Date :08-06-2018**

**Max. Marks: 70**

**Time: 02 Hrs**

**Pass Marks: 35**

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**SECTION-A**

**Bridge Equipment & Watch Keeping**

Answer **any four** questions from **Section A**. All questions carry equal marks.

1. (a). Briefly explain the principle of a sextant with a neat diagram.  
(b). Explain the working of an echo sounder.  
(5 marks x 2 = 10 marks)
2. (a) Fill in the blanks: (1 mark x 5 = 5 marks)
  - (i). \_\_\_\_\_ is a property of a gyroscope.
  - (ii). The eastward or westward movement of the north end of the gyro axle is called the \_\_\_\_\_.
  - (iii). The Ship's Magnetic Compass is normally located on \_\_\_\_\_.
  - (iv). The magnetic compass cannot be used at the \_\_\_\_\_.
  - (v). The rising and dipping movement of the north end of axle is called the \_\_\_\_\_.

(b). Name two advantages and three disadvantages of a magnetic compass over a gyrocompass. (5 marks)
3. (a). Briefly describe the duties of an Officer Of the Watch.  
(b). What are the duties of a look out. (5 marks x 2 = 10 marks)
4. (a). Define (i) Power driven vessel. (ii) Vessel not under command.  
(2 marks x 2 = 4 marks)  
(b). Describe Safe Speed. (6 marks)
5. (a). Describe the lights and shapes exhibited by (i) a NUC vessel and (ii) a vessel when aground. (5 marks)  
(b). Describe the lights and shapes exhibited by (i) CBD vessel and (ii) a dredger when underway and when at anchor. (5 marks)

**SECTION -B**  
**METEOROLOGY**

Question **Number 6 is compulsory**. Answer **any two** from the rest.

- 6.(a).Explain with neat diagram, different layers of atmosphere and separation Zones with heights.
- (b).Draw diagram for an Aneroid barometer.
7. (a).Explain following methods of Heat Exchange:
  - (i) Convection
  - (ii) Radiation
- (b). Explain Hydrological cycle with a neat sketch
8. Explain the working principle of a whirling Psychrometer. Sketch the same and discuss their uses.
9. Fill in the blanks with appropriate terms:
  - (i)The average\_\_\_\_\_ pressure at the earth's surface is\_\_\_\_\_.
  - (ii)\_\_\_\_\_ are the lines drawn on the weather map through the places having same \_\_\_\_\_ .
  - (iii)The transparency of atmosphere is called the\_\_\_\_\_ .
  - (iv)Dew point of a sample air would depend upon its \_\_\_\_\_ and \_\_\_\_\_ .
  - (v)\_\_\_\_\_ is lesser than \_\_\_\_\_ because as the saturated air is cooled, its capacity to hold the water vapour reduces.

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