

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

Date :08-06-2018

Max. Marks: 70

Time: 02 Hrs

Pass Marks: 35

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.
