

INDIAN MARITIME UNIVERSITY
(A Central University Government of India)
END SEMESTER EXAMINATION- JUNE-JULY 2019
DIPLOMA IN NAUTICAL SCIENCE

Semester: I

Navigation II: Bridge Equipment, Watch-Keeping and Meteorology
(UD11T4105)

Date: 28-06-2019

Time: 2 hours

Max.Marks: 70

Pass Marks: 35

Note:

Answer any 4 question in Part A and any 3 questions in Part B
All Questions carry equal Marks.

Part A: BRIDGE EQUIPMENT AND WATCH KEEPING

1. (a) State the adjustable errors of a sextant. Explain any one. (3+2=5 Marks)
(b) With a neat sketch state the working principle of a Marine Echo-sounder. (2+3=5 Marks)

2. (a) Fill in the blanks: (5x1=5 Marks)
 - i. A _____ is a fixed line on a compass binnacle parallel to the ship's fore & aft center line.
 - ii. One should check if there is a _____ present in the liquid inside the Magnetic compass bowl, as a part of care & maintenance.
 - iii. The error component of a Magnetic compass which depends upon the ship's magnetic properties is called _____.
 - iv. The main properties of a free gyroscope are rigidity in space and _____.
 - v. A free gyroscope has _____ degrees of freedom.(b) List out the advantages of gyro compass over magnetic compass. (5 Marks)

3. (a) State 6 factors which all vessel should consider while determining safe speed. (5 Marks)
(b) Draw the structure of the IRPCS (Colregs) showing the Parts and Sections along with their names; include rules (numbers only) under each part/ section (5 Marks)

4. (a) Define: (2x2=4 Marks)
 - i. Vessel Engaged in Fishing,
 - ii. Vessel constrained by her draught.

(b) In your own words explain the duties of a stand-on vessel? (5 Marks)

5. Draw the lights & day signals (shapes) displayed by the following vessels.
(2.5x4=10 Marks)

a) A vessel engaged in fishing other than a trawler with outlying gear extending more than 150 meters horizontally from the vessel and making way and seen from right ahead.

b) A vessel constrained by her draft seen from port side, (length 75m).

Part: B – METEOROLOGY

6. (a) Write a short note on the composition of atmosphere giving details of the 4 most popular gasses present in it. (5 Marks)

(b) Define the following: (2.5x2=5 Marks)

i. DALR

ii. Barometric Tendency.

7. (a) Explain how the earth's atmosphere is heated indirectly by the radiations received from the sun. (5 Marks)

(b) With a neat sketch give an account of the earth's hydrological cycle. (5 Marks)

8. Draw a neat sketch of Marine Hygrometer along with Stevenson's screen. State the working principle of this equipment and what parameters can be measured. (10 Marks)

9. Fill in the blanks: (5x2=10 Marks)

a. Stratopause is the boundary between _____ and _____.

b. The three heat exchange processes are _____, _____ and _____.

c. The condition when temperature increases with increase in height in the atmosphere is known as _____.

d. The paper on which atmospheric pressure is recorded on a barograph is known as _____.

e. With the help of a Anemometer we can measure _____ and _____.
