INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
December 2017 End Semester Examinations
B.Sc. (Nautical Science) - Third Year
Navigation Paper – IV (UG21T1303)

Date: 28.12.2017 **Maximum Marks: 75**
Time: 3 Hrs **Pass Marks: 45**

Note: (1) Use of **non- programmable Scientific Calculator** is **allowed.**
(2) Attempt any **Five** questions
(3) **All** questions carry **equal** marks.
(4) Draw neat, labelled diagram where ever necessary.

1. Explain the construction of a magnetic compass with a neat diagram. What is a binnacle?

2. What are the properties of free gyroscope? What is the operational principle of a gyroscope?

3. Explain principle and working of an Echo sounder. List errors of the echo sounder and explain what is aeration.

4. (a). Explain the working and advantages of the DGPS for determining the position of a ship.
(b). What are the various errors in the position derived by the GPS.

5. Write short notes on (a) Latitude error (b) Ballistic deflection (c) Speed error.

6. (a). Explain the principle and working of a Doppler Log.
(b). Describe the errors effecting the Doppler Log.

7. (a). Draw a schematic diagram of a Marine Radar and label each part.
(b). What is RACON and RAMARK?

8. Explain P, Q, R forces and how they are compensated in a ship's magnetic compass.

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