

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)

June 2017 End Semester Examinations  
Diploma in Nautical Science – First Semester

**Navigation II: Bridge Equipment, Watch keeping and Meteorology**  
**(UD11T 3105)** - (August 2015 batch onwards)

Date: 20.06.2017

Maximum Marks : 70

Time: 2 Hrs

Pass Marks : 35

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Note: Answer any four questions from Part A and any three Questions from Part B

All questions carry equal marks. (7 x 10 = 70 marks)

**Section – A**

1. a) Sketch the layout of the bridge. State all navigational equipments on bridge. (5 marks)  
b) Explain the principle and working of an Echo Sounder. (5 marks)
2. a) Describe the care & maintenance of Magnetic Compass. What is a "lubber line"? (5 marks)  
b) Which electronic equipments on the bridge have a feed from Gyro compass? How often are we required to check the 'Gyro Error' at sea? (5 marks)
3. As per STCW-2010 amendments, Chapter VIII on "Guidance on keeping a navigational watch"; write down the circumstances and conditions which are considered in determining the 'watch keeping arrangements'? (10 marks)
4. a) Define the term "Vessel restricted in her ability to maneuver".(5 marks)  
b) Which ships fall under this category as per rule 3? (5 marks)
5. Illustrate the lights and shapes for following vessels : (10 marks)
  - a) Vessel Not Under Command.
  - b) Vessel constrained by draft.
  - c) Vessel aground.
  - d) Vessel restricted in her ability to maneuver.
  - e) Vessel engaged in fishing.

**Section – B**

6. a) Sketch only a neat diagram showing temperature graph through different layers of atmosphere & separation zones with heights. (5 marks)  
b) Explain Barometric Pressure Tendency. (5 marks)
7. Explain with a diagram the Diurnal Variation of atmospheric temperature & also describe the reasons why Diurnal Range of temperature over land being larger than that of over sea. (10 marks)
8. a) Describe properties of Water Vapour in the atmosphere. (5 marks)  
b) With the help of a sketch explain Pressure Gradient force. (5 marks)
9. a) Draw a neat sketch and explain the working of Anemometer. (6 Marks)  
b) Briefly explain  
i) Temperature Inversion ii) Relative Humidity (2x2 =4Marks)

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