

**B.Sc. (NAUTICAL SCIENCE)****Term-End Examination****June, 2008****BNA-015 : NAVIGATION-II  
(BRIDGE EQUIPMENT, WATCH KEEPING  
METEOROLOGY AND OCEANOGRAPHY)***Time : 2 hours**Maximum Marks : 70*

**Note :** Answer total **seven** questions of which at least **four** should be from Section I and at least **two** questions from Section II.

**SECTION I**

1. (a) Explain the principle of Echo Sounder. 5  
(b) Explain with suitable sketch, how you can measure angles of upto about  $120^\circ$  with sextant having an arc of about  $60^\circ$ . 5
2. (a) What is a purpose of a Marine Chronometer ? 6  
(b) What time does Marine Chronometer keep ? 4
3. As an officer of watch, how will you prepare a ship for safe navigation at sea prior to leaving port with particular regard to avoiding collision and stranding ? 10

4. Define the following terms : 10
- (a) Vessel constrained by her draft
  - (b) Restricted visibility
  - (c) Sea plane
  - (d) Vessel underway
  - (e) Vessel not under command
5. (a) How will you determine if the risk of collision between two vessels exists ? 4
- (b) How will you go about taking "Action to avoid collision" as per Rule No. 8 ? Explain in your own words. 6
6. What is the responsibility of power driven vessel underway as per Rule No. 18 ? 10
7. Explain in your own words, the factors to be taken into consideration by all vessels in determining safe speed. 10

## SECTION II

8. (a) How does the ozone depletion occur ? 6  
(b) How do we know that natural sources are not responsible for ozone depletion ? 4
9. (a) What is Insolation ? Elaborate. 4  
(b) Why are Polar Regions colder than Equatorial Regions ? Explain with diagram. 6
10. Explain Aneroid Barometer and its construction with a neat diagram. 10
11. Define the following : 10
- (a) Dew point temperature
  - (b) Humidity mixing ratio
  - (c) Specific humidity
  - (d) Super-cooling
  - (e) Temperature inversion

