

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

December, 2012

**BNA-022 : NAVIGATION IV
(ADVANCED - BRIDGE EQUIPMENT, WATCH
KEEPING, METEOROLOGY AND
OCEANOGRAPHY)**

Time : 2 hours

Maximum Marks : 70

- Note :** (i) *All questions are compulsory.*
(ii) *Ship's weather code is allowed.*
(iii) *Use of calculator is permitted.*

SECTION - A

(Bridge Equipment and Colregs)

1. (a) State the information provided by AIS. 5
(b) Explain the principle of GPS. 5
2. List atleast three entries which are required to be made in following bridge logs. 3x3=9
(a) Garbage log book
(b) Movement order (bell) book
(c) RADAR log
3. (a) Explain how will you prepare the vessel for sailing as officer of the watch ? 4
(b) Explain the duties of the officer of the watch prior to ship's arrival in port. 4

4. (a) Explain how the use of RADAR will affect determination of safe speed ? 5
- (b) Explain what is meant by risk of collision ? 4
5. Define the following as per Rule 10 of COLREGS 1972. 2x3=6
- (a) Traffic Lane
- (b) Separation zone
- (c) Inshore traffic zone

SECTION - B

(Meteorology and Oceanography)

6. Define the following : 3x2=6
- (a) Spray
 - (b) Visibility
 - (c) Dew

7. Explain the structure of a depression. 8
8. Explain true and apparent wind. 5
9. Code the following ship's report : 9

Ship : 3FRK, Position : 27° 35' N 98° 29' W, Course made good last three hours : 320° at 15 knots, visibility : 20 km, wind : 240° estimated at 16 knots, pressure : 1026.8 mb, Tendency : + 6.4 mb, Barograph trace : GMT : 08d 06 h 10 m. Temperature : Dry 28.5° C, wet 23.0° C, Sea 20.6°C.

Clouds : Total 6/8 of sky, low clouds 4/8 of sky, base 1000 metres above sea, Sc not resulting from Cu, Dense Ns, ciin hooks progressively invading sky. Weather : present - precipitation near but not at station. Past - cloud covering more than 1/2 sky throughout and intermittent drizzle.

Sea : period 08 seconds, height 01 Metre.

Swell : From 050°, period 10 seconds, height 02 metres.