

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

December, 2011

**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 scientific calculator is permitted.*

SECTION - A

(Bridge Equipment and Colregs)

2x5=10

1. (a) Explain the principle of bottom type of speed log with the help of a block diagram.
(b) Explain various modes of steering and change over procedure from hand to auto.
2. List four entries each, which are required to be made in following logs : **3x2=6**
 - (a) Oil Record Book
 - (b) Mates Log Book
 - (c) Garbage Log Book

3. (a) Explain the preparations required to be made and duties of deck officers prior to arrival port. 2x4=8
- (b) Explain the procedures for testing controls.
4. (a) Explain what is meant by "Risk of Collision"? 5
- (b) Describe :
- (i) Give way vessel 2½
- (ii) Stand on vessel 2½
5. (a) Describe how to navigate in a traffic separation scheme with reference to :
- (i) Crossing lanes. 2
- (ii) Navigating in areas near the termination of TSS. 2
- (b) Describe the actions to be taken on nearing a bend in narrow channel or fairway 4

SECTION - B

(Meteorology and Oceanography)

6. Define the following : 3x2=6
(a) Mist
(b) Fog
(c) Spray
7. Explain development and classification of clouds. 8
Write names of various types of clouds
8. Explain the basic concepts related to tropical revolving storms. 5
9. Code the following ship's report : 9
Ship : VHAN, POSITION : 00°05' N046°58'E,
course made good past three hours : 170° at
10knots, GMT:16d 00h20m, wind : 052° estimated
at 10 knots. Visibility : 500 metres, pressure
1008.8mb,
Tendency +3.6mb, Barograph trace : /
Temperature : Dry 28.5°C, wet 23.0°C, sea 20.6°C
Clouds : sky overcast with a few blue patches.
Low clouds 4 oktas, base 600 metres above sea,
Cu of strong vertical extent, Ac in a chaotic sky,
Cc. Present weather : visibility poor due to dust
in suspension in the air, not raised by wind at or
near ship.
Past weather : Thick haze, thunderstorm.
Sea : Period 04 seconds , height 0.4 metres
Swell : From 270°, period 08 seconds, height 04m.