

**B.Sc. (NAUTICAL SCIENCE)**

**Term-End Examination**

**01875**

**December, 2014**

**BNA-016 : CARGO HANDLING, STOWAGE AND SEAMANSHIP - I**

*Time : 2 hours*

*Maximum Marks : 70*

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*Note : Answer **all** questions. Use of non-programmable scientific calculator is allowed.*

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1. A hollow cylinder of diameter 1.8 m and length 5.0 m floats in SW with its axis vertical and draft 1.5 m. The cylinder is closed at one end. Given the load draft as 4.5 m.

Calculate :

(i) DWT Available

(ii) FWA

10

2. List the procedure for preparation of holds prior to loading w.r.t. :

(i) Cleaning

(ii) Testing for weather tightness

5+5

3. Write short notes on the following (2 – 3 lines only) : 10
- (i) Segregation of cargoes
  - (ii) Containerisation – Advantages
  - (iii) Need for cargo ventilation
  - (iv) Parts of a block
  - (v) Luff Tackle rove to disadvantage
4. A cargo hold 20 m × 20 m × 15 m (L × B × Ht) having bale capacity 5700 m<sup>3</sup> and load density 5 t/m<sup>2</sup> is to be filled so as to maximize the freight earned. The following cargoes are available :
- Aluminium Billets  
SF 0.6 m<sup>3</sup>/t Freight USD 25.00/t
- Jute Bales  
SF 3.0 m<sup>3</sup>/t Freight USD 27.00/t
- Calculate :
- (i) Amount of each cargo 7
  - (ii) Total freight earned 3
5. Explain the following with neat sketches wherever applicable : 10
- (i) Reserve Buoyancy % (Formula only)
  - (ii) Block Coefficient ( $C_b$ )
  - (iii) Camber
  - (iv) Aft Perpendicular
  - (v) Dock Water Allowance

6. Explain the following giving at least five points each : 10

(i) The precautions for entering enclosed spaces.

(ii) The precautions during berthing/unberthing operations.

7. Draw the starboard side Load Lines of a ship having the following particulars and label all the dimensions. 10

LOA 150 m

Load  $\Delta$  40,000 t

Summer Draft : 9.6 m

TPC : 30 t/cm

Statutory Freeboard : 2.5 m

(Drawing to the scale is not required)

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