

00412

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

**Term-End Examination**

**December, 2011**

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

*Time : 2 hours*

*Maximum Marks : 70*

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*Note : Answer all questions. Non-Programmable scientific calculator is allowed.*

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1. A rectangular tank total depth is 10.5m and volume is  $8200\text{m}^3$ . Tank is filled up with Oil of RD 0.95. Depth of the trunk way is 0.5m and volume is  $200\text{m}^3$ . If 4% of the volume of the tank is left for expansion, find out weight of the oil in the tank and also final ullage. 10
  
2. Draw the side elevation of a three hold bulk carrier and show the following parts : 10
  - (a) Peak tanks
  - (b) DB tanks
  - (c) Hatch coamings
  - (d) Top Side Tank
  - (e) Transverse watertight bulkhead

3. List any three type of cargoes that can be carried on each of following types of vessels : 10
  - (a) Bulk Carriers
  - (b) Multi Purpose Vessel.
  - (c) Oil Tankers
  - (d) Container Vessels
  - (e) Ro-Ro.
  
4. List safety precautions to be taken during : 10
  - (a) Painting on deck and the PPE required
  - (b) Using Portable Ladders.
  
5. (a) List Ten Points, to be followed to prepare a cargo hold for loading bulk cargo. 10
  - (b) The dimensions of a hold are  $20\text{m} \times 15\text{m} \times 3\text{m}$ . Find the maximum weight of general cargo that can be loaded in the compartment if stowage factor is  $1.2\text{m}^3/\text{t}$  and Broken Stowage is 10%. Will there be change in the quantity of cargo to be loaded, if Load Density of the deck is  $2\text{ t/m}^2$  ?
  
6. (a) Explain the following terms : 10
  - (i) Reserve buoyancy
  - (ii) FWA and TPC
  - (iii) Freeboard and Draft of a ship
  - (iv) Block Coefficient
  - (v) Water plane coefficient.
  - (b) A ship floating in FW at a draft of 6.4 mtrs. If her maximum FW draft is 7.2m and her SW TPC is 38, find the Deadweight available ?

7. (a) Explain the care and maintenance you need to carry out on synthetic fibre ropes and wire ropes. 10
- (b) What precautions need to be taken while making fast mooring lines.
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