

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

**Term-End Examination**

**December, 2010**

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

*Time : 2 hours*

*Maximum Marks : 70*

---

*Note : All questions are compulsory. Use of scientific calculator is permitted.*

---

1. Explain the general principles involved in carrying out ballasting operations safely in port or at sea. 10
  
2. What are the safety precautions to be observed when : 15
  - (a) Entering an enclosed space
  - (b) Working aloft.
  - (c) Opening/closing hydraulic hatch covers
  
3. Explain what is meant by the terms 'buoyancy' and 'reserve buoyancy'. 10

4. Explain ship sweat and cargo sweat. Describe how temperature control is done using the hold fan and duct system. 15
5. Draw a neat sketch of a self trimming bulk carrier and show the following parts : 10
- (a) Double Bottom Tank
  - (b) Top Side Tank
  - (c) Transverse watertight bulkhead
  - (d) Air pipes
  - (e) Hold Bilges
6. Define and illustrate the following : 10
- (a) Forward Perpendicular (FP)
  - (b) After Perpendicular (AP)
  - (c) Length between Perpendiculars (LBP)
  - (d) Length Overall (LOA)
  - (e) Moulded depth
-