

**B.Sc. (NAUTICAL SCIENCE)****Term-End Examination****June, 2010****BNA-024 : SHIP OPERATIONS***Time : 2 hours**Maximum Marks : 70*

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- Note :** (i) *Question No. 1 and 2 are Compulsory.*  
(ii) *Attempt any five of the remaining seven questions.*  
(iii) *Use of non-programmable scientific calculator is allowed.*  
(iv) *Use of M.V. Hindship Hydrostatic table is allowed.*
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1. A ship of 2000 tonnes displacement and KG 3.66 m, loads 1500 tonnes (KG 5.5 m) 3500 tonnes (KG 4.60 m) and takes 1520 tonnes (KG 0.6 m). She discharges 2000 tonnes cargo (KG 2.44 m) and consumes 900 tonnes of bunkers (KG 0.40). Find the KG of the vessel at the end of the voyage. **10**
2. M. V. Hindship is floating at a draft of  $F = 7.40$  m **10**  
 $A = 6.60$  m in dock water of RD 1.016. Calculate her  
(a) Hydrostatic Draft  
(b) Displacement  
(c) Dead weight

3. Draw mid-ship cross-section of a container ship having combined system of framing. 10
4. With suitable diagram explain the meaning of the following :
- (a) Metacentre 3
  - (b) Angle of coll 4
  - (c) Metacentric Height 3
5. Draw the outline sketch of the following : 5x2=10
- (a) Sounding Pipe
  - (b) Drip tray
  - (c) Beam knee
  - (d) Air pipe
  - (e) Strum box
6. Write down five special areas and five particular sensitive Sea Areas as per Marpol Annex-I 10
7. Write short notes on *any two* of the following : 2x5=10
- (a) International Safety Management Code (ISM)
  - (b) Flag State Control Inspection
  - (c) Port State Control Inspection (PSC)

8. Write down basic function of the following machinery on board ship : 5x2=10
- (a) Purifier
  - (b) Oily bilge water separator
  - (c) Steering Gear Motor
  - (d) Evaporator
  - (e) Lub oil cooler
9. List the Radio equipments that are carried on board a vessel in Sea Area A<sub>1</sub> and A<sub>2</sub>. 10
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