

00625

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

**Term-End Examination**

**December, 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 table is allowed.*
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1. A ship of displacement 10,000 tonnes, km 7.0m KG 6.40m carries out the following operations :- 10
- (a) Loads 800 tonnes in No.2 LH (KG 3.75m) and 4m to Port of centre line
- (b) Loads 600 tonnes in No.4. LH (KG 6.0m) and 8m to stbd of centre line
- (c) Discharges 1400 tonnes from upper deck KG (10.0m) 2m to stbd of centre line. If her Free surface Moment is 4400 tm find her final list.
2. M.V. HINDSHIP is in condition no. 4 at MUMBAI. 10  
A consignment of Cargo weighing 500 tonnes is shifted from no.3 hold to the upper deck KG (13.28m). Find the Final GM (SOLID and FLUID)

3. Draw a sketch of Mid-Ship Cross-Section of an oil tanker. 10
4. With the help of a diagram define the following :-
  - (a) Rake 2x5=10
  - (b) Hair
  - (c) Camber
  - (d) Tumble home
  - (e) Sheer
5. With suitable sketches define the following
  - (a) Hogging 3
  - (b) Sagging 3
  - (c) Angle of loll 4
6. Write down five conditions under which oily water may be discharged into sea from Cargo spaces on an oil tanker. 10
7. State the purpose of the following IMO conventions :- 5x2=10
  - (a) International Convention on LOAD LINE
  - (b) International Convention for the Safety of life at Sea (SOLAS)
8. Write short notes on the following :- 5x2=10
  - (a) SART or EPIRB
  - (b) NAVTEX RECEIVER
9.
  - (a) Define functions of alternator and transformer on board ships. 5x2=10
  - (b) Write a short note on the refrigeration plant.