

B.Sc. (NAUTICAL SCIENCE)**Term-End Examination****June, 2013****BNA-024 : SHIP OPERATIONS***Time : 2 Hours**Maximum Marks : 70*

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- Note :**
- (i) Question Nos. 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 M.V. Hindship table is **allowed**.
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1. A ship of displacement (10000 tonnes), 10
 KM 7.0 m, KG 6.0m works cargoes as follows :
 Loads 800 T in No. 2 LH(KG 3.75m) 4m to port of the centre line.
 Loads 600T in No.4 LH (KG6.0m) 8m to starboard of the centre line.
 Discharges 400 T from upper deck (KG 10.0m) 2m port of the centre line.
 If the FSM is 4400 tm, find the final list.

2. M.V. 'Hindship' floating in condition No.2 loads 10
 400 tonnes of cargo in N0.1 T.Deck and on the voyage consumes the entire oil in No.2 DB tanks P&S. Calculate GM (solid& fluid). As change of displacement is negligible, assume FSC constant.

3. Draw a profile view of crude oil tanker showing location of oil tanks, pump room, Engine room, fore peak tank, after peak and ballast tanks. 10

4. Sketch and describe the following briefly : 10
 - (a) Air pipe
 - (b) Bilge well
 - (c) Tank dome
 - (d) Duct Keel

5. (a) Draw a sketch of a typical forecastle mooring and anchoring arrangements, showing the leads of moorings. 5
- (b) Describe shearing force and bending moments. 5

6. List the entries required to be made in oil record book with respect to cargo or ballast operations on oil tankers. 10

7. (a) List the Annexes of MARPOL 73/78 as amended. 5
- (b) State the purpose of International Convention on Ballast Water Management. 5

8. (a) List the purpose of ISM and the functions of Flag State Inspection (FSI) and Port State Control(PSC). 5
- (b) Describe the purpose of NAVTEX receiver. 5

9. Describe the function of following :

(a) Air compressor and air bottles 5

(b) Evaporators. 5
