

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

June, 2011

BNA-024 : SHIP OPERATIONS

Time : 2 hours

Maximum Marks : 70

- 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.

1. A ship of 16000 t, KM 9.0 m, KG 8.0 m is listed 10
7° to starboard. She then works cargo as
follows :
- (a) Loads 600 T cargo KG 4.5 m, 5 m to port
from centreline.
 - (b) Loads 400 T cargo KG 8.0 m, 4.5 m to
starboard from centreline.
 - (c) Discharges 1000 t KG 6.5 m, 1.0 m to
starboard from centreline.
- Find the final list.
2. M.V. Hindship floating in condition No. 2 loads 10
400 tonnes of cargo in No. 1 T.Deck and on the
voyage consumes the entire oil from No.2 DB tanks
(P and S). Calculate GM (Solid and Fluid). As
change of displacement is negligible, assume FSC
constant.

3. Draw midship cross - section of a double hull tanker with longitudinal framing. 10
4. With the help of diagram define the following : $2 \times 5 = 10$
- (a) Rake
 - (b) Tumblehome
 - (c) Sheer strake
 - (d) Stealer plate
 - (e) Moulded Depth
5. Explain the following and specify the counter measures adopted on merchant ships :
- (a) Panting 3
 - (b) Pounding 3
 - (c) Racking 4
6. State the conditions under which oily mixture from machinery space bilges may be discharged into the sea. 10
7. (a) Describe Five key points in a typical Shipboard Oil Pollution Emergency Plan (SOPEP). $2 \times 5 = 10$
- (b) State the purpose of International Convention on ballast water management.

8. Write short notes on the following : 2x5=10
- (a) EPIRB
 - (b) STCW 95
9. (a) Define functions of air compressor and purifier on board ship. 5
- (b) Write short notes on steering gear and its functions. 5
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