



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/BNS/SEP.SUPPLE/SEM-5/BNS-502/2012**

**2012**

**SHIP OPERATION TECHNOLOGY-III**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Objective Type Questions )**

1. Answer the following questions in brief : 10 × 1 = 10
- i) Enlist various gauging (ullaging) devices.
  - ii) Which manual will be referred for safe stowage and securing ?
  - iii) What is statement of acts ?
  - iv) What is spontaneous combustion ?
  - v) What is function of ESD ?
  - vi) Enlist various types of cargo pumps.
  - vii) What is the differences between inerting and purging ?
  - viii) Distinguish between displacement and dilution methods.
  - ix) What is SMPEP ?
  - x) What are different container handling gears ?



**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2.
  - a) Enlist various cargo documentation for loading bulk cargoes.
  - b) State various types of cargoes carried by multipurpose ships.
  - c) What is meant by ODC ?  $2 + 2 + 1$
3.
  - a) What markings do appear on a container ?
  - b) What does the code APLU 4310 stand for ?
  - c) Explain alternate hold loading.  $2 + 2 + 1$
4.
  - a) How can the maximum amount of cargo to be loaded in a bulk carrier be calculated ?
  - b) What is meant by grain ?
  - c) State two main hazards with respect to carriage of grain.  $3 + 1 + 1$
5. With respect to IMDG explain the following :
  - a) Classification of IMDG cargoes
  - b) Emergency procedure
  - c) Carriage of explosives
  - d) Medical First-Aid Guide (MFAG).



**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

6. a) A crude oil tanker of LBP 250 m has a tank of dimensions length 30 m, breadth 20 m and depth 20 m and is trimmed 3 m by astern. The ullage port is in line with the aft bulk head and its height is 1.2 m above the deck. The ullage of the cargo as measured from ullage port is 2.2 m. Using a sonic tape, calculate net observed volume of oil and the quantity of oil. Given density of oil at  $15^{\circ}\text{C} = 0.8550$ , VRF = 0.9873 and loading temp. is  $31^{\circ}\text{C}$ .
- b) What are the essential features of a container ? What are the ISO dimension for a container ?  $10 + 5$
7. a) A seven hold bulk carrier has been fixed to load grain in bulk. Describe the procedure that you will follow highlighting the special precautions to determine the following :
- (i) Total quantity of cargo that can be loaded
  - (ii) Its hold-wise distribution
  - (iii) Compliance with stability criteria.



- b) (i) What is TDM ?
- (ii) What is LNA ?
- (iii) What is the power output of inmarsat SES ?
- (iv) How will you often update position on the DSC ?
- (v) What is the antenna impedance of the VHF DSC ?

10 + 5

8. With neat outline diagrams, describe the functions of the following with respect to inert gas system of an oil Tanker :

- a) Pressure/vacuum valve
- b) Pressure/vacuum breaker
- c) Deck seal
- d) Purge pipe
- e) Non-return valve.

5 × 3

9. a) What is ATU ? Write its functions.
- b) Which equipment is used for locating a ship ? Describe the function of the equipment.
- c) What is MF/HF DSC testing procedure ? Describe how simplex and duplex in R/T works.

5 + 5 + 5

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