

## DIPLOMA IN NAUTICAL SCIENCE

### Term-End Examination

December, 2007

### BNA-023 : CARGO HANDLING, STOWAGE AND SEAMANSHIP – II

Time : 2 hours

Maximum Marks : 70

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**Note :**

- (i) All questions are **compulsory**.
  - (ii) Use of scientific calculator, Norries/Burton tables is allowed.
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1. Answer the following briefly : 20
- (i) What is the meaning of “topping off” a cargo tank ?
  - (ii) What is an oxygen analyser ?
  - (iii) What is a submersible pump ?
  - (iv) What are cell guides on a container ship ?
  - (v) What is a high cube container ?
  - (vi) What are the hazards associated with high density bulk cargoes ?
  - (vii) What are different types of paint brushes ?
  - (viii) What is an inhibitor ?
  - (ix) What is a reefer cargo manifest ?
  - (x) What is a lashing manual ?

2. The dimensions of a cargo hold are length 12.5 m, breadth 9 m and depth 6.3 m. Load density of the tank top in the hold is  $6.5 \text{ t/m}^2$ . What is the maximum amount of cargo that can be loaded safely inside this hold if the stowage factor of cargo is  $0.95 \text{ m}^3/\text{t}$  and broken stowage is 7% ? 10
3. (a) What is Annex II of MARPOL 73/78 ? What do you understand by Shipboard Marine Pollution Emergency Plan (SMPEP) ? 5
- (b) What is the purpose of providing pressure vacuum valves in an inert gas distribution system of a tanker ? What actions shall be taken when a vacuum is observed to be developing inside cargo tanks while discharging cargo ? 5
4. (a) What is the bay plan of a container ship ? How is a container located in the plan ? 5
- (b) Describe briefly the three types of containment systems for carriage of liquified gases in bulk. 5
5. Describe the safety precautions to be observed while keeping a cargo watch on an oil tanker while discharging. What additional precautions shall be observed when carrying out crude oil washing ? 10
6. (a) What is a hot work permit ? What is the role of a safety officer while a hot work is being carried out on board ? 5
- (b) How is anchor cable marked ? What is the meaning of "brought up to six shackles on deck" ? 5