



**DIRECTOR GENERAL OF MERCHANT SHIPPING
GOVERNMENT OF SRI LANKA
CERTIFICATE OF COMPETENCY EXAMINATION**

GRADE: CHIEF MATE/MASTER ON SHIPS OF 500 GT OR MORE

SUBJECT: SHIPBOARD OPERATION

DATE : 13th Mar 2020, 0900 hrs to 1200 hrs.

Time allowed **THREE** hours

Total Marks 180

Answer **ALL** questions

Pass Marks 60%

Formulae and intermediate steps taken in reaching your answer should be clearly shown. You may draw sketches where ever consider prudent.

Q 1 a) Write short notes on followings:

- i) Enhance Survey Program.
- ii) Intermediate Survey . (3 marks each)
- b) Describe the preparation required for RENEWAL load line survey. (8 marks)
- c) Explain the circumstances in which an International Load Line Certificate would be canceled by the administration. (6 marks)
- d) Explain the Documentation and records that must be maintained on the ship in terms of
 - i) Records of Freeboard
 - ii) Information relating to the stability and loading of the ship. (10 marks)

Q 2 a) As per the requirement of IACS a vessel should have a planned maintenance system. Describe what a planned maintenance system is. (05 marks)

- b) Describe the minimum requirement that a planned maintenance system should contain (12 marks)
- c) There are various computer based PMS modules available for ships. List those (08 marks)
- d) What are the advantages and disadvantages of having a PMS system on board a merchant vessel (05 marks)

Q3 a) With regard to tanker operations, explain following;

- 1) Segregated Ballast
- 2) Ignition point
- 3) Upper flammable limit
- 4) ISGOTT
- 5) Cavitations **(10 marks)**

b) In maintaining a gas free environment inside the tanks, how does the principle of inert gas system has benefited you in achieving this task? **(10 marks)**

c) With regard to the certificate of fitness,

- 1) What vessels are issued with this certificate? **(03 marks)**
- 2) For what purpose is this certificate issued? **(04 marks)**
- 3) Who issues this certificate? **(03 marks)**

Q 04) With reference to the IMSBC code,

- a) BC code was replaced by IMSBC code which was adopted on 04.12.2008 and became mandatory from 01.01.2011. Explain briefly how it was achieved **(05 marks)**
- b) What are solid bulk cargoes as defined in the code **(05 marks)**
- c) To prevent excessive stresses during loading, unloading and stowage of solid bulk cargoes what information shall be provided to the vessel **(10 marks)**
- d) What exchange of information and agreement should take place between the Master and the terminal before and during loading operation **(05 marks)**
- e) What are the documents prepared as regulatory requirements before departure of a vessel loaded with solid bulk cargo? **(05 marks)**

Q 05) With reference to grain regulation explain,

a) What is the minimum criterion to comply for a vessel to set out to sea with a consignment of grain? **(10 marks)**

b) How the heeling arm due to grain shift is derived and what are the parameters for the vessel to remain seaworthy? **(10 marks)**

c) What action you could take to improve the situation if the vessel is found not complying with the requirements? **(10 marks)**

Q 06) briefly explain the purpose and objectives of establishing the following conventions and by whom they were introduced. Also indicate who are exempted from compliance in each case.

1) FAL convention 1965

2) STCW 1978 as amended 1995

3) SOLAS 1974 and subsequent amendments

4) MARPOL 73/78, subsequent protocols and amendments

5) Tonnage convention 1969

6) Load line Convention

(30 marks)