

V61/T11072/EE/20160710

Time : 3 Hours

Marks : 80

Instructions :

1. All Questions are Compulsory.
 2. Each Sub-question carry 5 marks.
 3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
 4. Question paper of 80 Marks, it will be converted in to your programme structure marks.
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1. Solve any **four** sub-questions.
 - a) Write briefly about the various hazards of petroleum. 5
 - b) Write a short note on the atmospheric tests carried out prior entry into enclosed space. 5
 - c) What is hot work and why is hot work permit required on board tankers? 5
 - d) What is flammability and write about the 2 flammable limits. 5
 - e) Explain briefly the meaning of the following: 5
 - i) Cold work
 - ii) Intrinsically safe
 - iii) Bonding
 - iv) Clingage
 - v) Enclosed space
2. Solve any **four** sub-questions.
 - a) When carrying out ODME operations on tankers enlist the MARPOL Annex 1 regulations which govern such discharges? 5
 - b) What is an Oil record book? Explain the two different types of Oil record books used on tankers and their uses. 5
 - c) With reference to cargo oil stripping explain functioning of an automatic unloading system used along with centrifugal cargo pumps. 5
 - d) Write a short note on float type level gauging system. 5
 - e) Explain what is parallel pumping in case of centrifugal cargo pumps. Draw a diagram explaining the performance curves in case of parallel pumping. 5

3. Solve any **four** sub-questions.
- a) Enumerate the entries to be made in a tanker log book (cargo log book) during cargo operations. 5
 - b) What is topping off operation and what are precautions to be taken during topping off ? 5
 - c) What is closed loading and write briefly about procedures and precautions during closed loading? 5
 - d) What is meaning of the term 'load on top'? How has it proved to be beneficial? 5
 - e) Explain what is ballasting and de ballasting and why is a ballast water management plan required? What are the contents of a ballast water management plan? 5
4. Solve any **four** sub-questions.
- a) What is a scrubber tower in an inert gas system? Draw a neat sketch of a scrubber tower showing the entry and exit of the inert gas and sea water. 5
 - b) Why is inert gas required on board tankers and what are the sources of inert gas on a oil tanker? 5
 - c) What is the function of the main control valve in an inert gas system and where is it located? 5
 - d) Write a short note on vapour emission control system. 5
 - e) List five alarms/shutdowns on an inert gas system. 5

