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Seventh Semester B.E. Degree Examination, Feb./Mar. 2022

Ship Fire Prevention and Safety

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain with a neat sketch about the flammability diagram indicating LFL, UFL, Flammable range, purging and dilution lines. (10 Marks)
- b. Explain the terms :
 - i) Spontaneous combustion
 - ii) Smouldering combustion
 - iii) inhibition of chain reaction
 - iv) Flash point of flammable liquid. (10 Marks)

OR

- 2 a. Write the classification of Fire according to NFPA. (04 Marks)
- b. Explain the four fires extinguishing methods and medium used for extinguishing fire. (08 Marks)
- c. What are its advantages and disadvantages of following fire extinguishing mediums.
 - i) Water ii) CO₂. (08 Marks)

Module-2

- 3 a. Explain about the requirements of materials of construction and design of ship. (08 Marks)
- b. Enlist the fire safety objectives and functional requirements of SOLAS. (08 Marks)
- c. What are the colour coding, temperature rating and area of coverage of sprinkler heads fitted in ships accommodation? (04 Marks)

OR

- 4 a. Explain with neat sketches of the following fire detectors. (15 Marks)
 - i) Light obscuration types smoke detector
 - ii) Light Scattering type smoke detector
 - iii) Bi-metallic heat detector
- b. Enlist various fire tests as per the FTP code. (05 Marks)

Module-3

- 5 a. Draw a neat sketch and explain briefly the construction and working of high pressure water mist system installed in the ship. (10 Marks)
- b. Write the requirements for installation of fire detectors and alarms onboard ships. (10 Marks)

OR

- 6 a. Draw a neat sketch of CO₂ cartridge fitted 9 litre Aqueous Films Forming Foam Portable fire extinguisher; explain the construction, operation and equation during operation. (10 Marks)
- b. Write short notes on low, medium and high expansion foams used in ship to fight the fire. (05 Marks)
- c. What are the cautions for the operation of CO₂ fire fighting system in Engine Room? (05 Marks)

Module-4

- 7 a. What is the re-entry procedure to a fire affected compartment after the operation of CO₂ flooding system. (08 Marks)
b. Explain step by step procedure of fire fighting in ships dry cargo hold. (12 Marks)

OR

- 8 a. Write down the information and facilities available at central control station. (06 Marks)
b. Write down the fire fighting teams organization, personnel involved and duties of each team in a passenger ship. (14 Marks)

Module-5

- 9 a. Write down the first aid procedure
i) during burns
ii) CPR. (10 Marks)
b. Write the procedure of rescue operation from a SMOKE filled compartment. (10 Marks)

OR

- 10 a. What are the special fire prevention methods in tankers and chemical carriers? (12 Marks)
b. Write down the periodic safety checks carried out with respect to fire onboard ship. (08 Marks)

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