

GANPAT UNIVERSITY

B.Tech. Semester IV (Marine Engineering)

Regular Examination June -2014

02MR-404 MARINE INTERNAL COMBUSTION ENGINE-I

Date: 19/05/2014

Time-3 HOURS

Total Marks : 70

- INSTRUCTIONS:** (1) Attempt all questions.
(2) Assume suitable data if necessary
(3) Figures to the right indicate full marks

Section-I

Q-1 Attempt any Three: (12)

- What is supercharging? What are the main advantages of supercharging?
- What is Scavenging? Describe various methods of scavenging with their advantages and disadvantages.
- What do you understand by the term 'pulse system' of exhaust turbo charging? Write merits and demerits.
- Write the reasons for manufacturing Liner separately from Cylinder Block.

OR

Q. 1 Attempt any Three: (12)

- What are causes of Liner Wear? Draw the pattern of Liner wear.
- Mention the sequence of tightening of Tie Bolts for Sulzer and MAN B&W engines? How are they tightened?
- Draw and Name the parts incorporated in a Cylinder Head of a 4-stroke Engine.
- What are functions of piston rings? What material is used for manufacturing of piston rings?

Q-2: All questions carry equal marks. (11)

- a) Draw and Explain the Piston of a 2- Stroke engine. Why grooves are chrome plated?
.....6
- b) Why the pistons of large 2-stroke engines are cooled? Mention cooling mediums used with their merits and demerits.....5

OR

Q-2: All questions carry equal marks. (11)

- a.) Describe the principle construction features of a turbocharger with a sketch.....6
- b.) How blower and turbine side of a turbocharger is cleaned during operation of a diesel engine?5

Q-3 Answer following (12)

- a) Describe with sketch fuel valve of a marine diesel engine? Why nozzles are cooled?
- b) Describe overhauling procedure of a diesel engine fuel valve.

Section-II

Q-4: Attempt any two (12)

1. What are the various margins provided in an Engine? Explain with the help of Load Diagram.
2. How a 2 S engine differs from 4 S Engine?
3. Why Direct Reversible Engines are preferred for Higher Power Demand?
4. Enlist the advantages of Modern Common Rail System.

OR

Q-4: Attempt any two: (12)

1. Give the complete nomenclature of any one Engine explaining the terms used in it.
2. Sketch and Describe a Caged Exhaust Valve for Medium Speed Engine.
3. Mention the features of a V- Engine. What is Articulated Con Rod?
4. Why is it necessary to check the length of Bottom End Bearing Bolts at the time of Routine Decarbonisation of Medium Speed Diesel Engine ?

Q-5 Attempt Following (11)

- a. What is VIT? Explain the principle of its mechanism in Bosch type fuel pump6
- b. What are the trends of development in Medium Speed Marine Diesel Engines? How are they achieved?5

OR

Q.5 Attempt following: (11)

- a. What are the advantages of using long stroke in Marine Diesel Engine?6
- b. Explain the term – Tribo Pack as offered by Wartsila Sulzer group.....5

Q-6 Answer the following: (12)

- a. Sketch and describe Jerk Fuel Pump (Valve Type). (7)
- b. Match the following : (5)

1	Peak Pressure (P max) in Cylinder	1 to 4 Bar
2	Scavenge Air Pressure	10-20 Bar
3	Common Rail Servo Oil Pressure	100-150 Bar
4	Common Rail Fuel Oil Pressure	200 Bar
5	Mean Effective Pressure (MEP)	1000 bar

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