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**Fifth Semester B.E. Degree Examination, June/July 2019**

**Marine Internal Combustion Engine – I**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting at least TWO questions from each part.**

**PART – A**

- 1 a. Explain the valve-timing diagram of 4-stroke engine with neat sketch. (10 Marks)
- b. Define:
  - i) Indicated power
  - ii) Brake power
  - iii) Mechanical efficiency
  - iv) Mean effective pressure (10 Marks)
- 2 a. Explain oil cooled piston with neat sketch. (10 Marks)
- b. Explain hydraulic operated exhaust valve with neat sketch. (10 Marks)
- 3 a. Explain the advantages of scavenging. (10 Marks)
- b. Explain the gas exchange process. (10 Marks)
- 4 a. Explain pulse type turbocharger. (10 Marks)
- b. Explain turbocharger problems in working. (10 Marks)

**PART – B**

- 5 a. Draw the fuel injector and mention its parts. (10 Marks)
- b. Explain combustion phases with neat sketches. (10 Marks)
- 6 a. Explain cooling water treatment. (10 Marks)
- b. Write short notes on types of lubrication. (10 Marks)
- 7 a. Explain causes and prevention of crankcase explosion. (10 Marks)
- b. Draw starting air line diagram with safety fittings. (10 Marks)
- 8 a. Explain development of long-stroke engines. (10 Marks)
- b. Explain variable exhaust closing operations. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.