

B. Tech Degree V Semester Examination in Marine Engineering January 2011

MRE 504 MARINE INTERNAL COMBUSTION ENGINES - I

Time : 3 Hours

Maximum Marks : 100

- I. Explain the timing diagram of two stroke and four stroke engines. Describe heat balancing and thermal efficiency of a diesel engine. (20)
- OR**
- II. Sketch and describe the functions of a X – head of two stroke diesel engine used on board as main engine. (20)
- III. What are the differences between Uniflow Scavenging and Cross flow Scavenging. Describe Scavenging arrangements in a two stroke diesel engine. (20)
- OR**
- IV. Draw a neat sketch of a Turbocharger Rotor and explain its constructional details. (20)
- V. Write notes on :
- | | | | |
|--|----------------------|--------------------|--------------|
| | (i) Fuel injectors | (ii) Atomization | |
| | (iii) Ignition delay | (iv) After burning | (4 x 5 = 20) |
- OR**
- VI. What are the reasons for variations in compression pressure and peak pressure in two stroke diesel engine? Describe the methods of controlling NOX emission in exhaust. (20)
- VII. Describe various methods of Piston cooling, Jacket cooling and Cylinder Head cooling in an I.C. Engine. Describe the oil cooled piston with sketch. (20)
- OR**
- VIII. Write notes on :
- | | | | |
|--|---|--|--------------|
| | (i) Uptake fire | | |
| | (ii) Starting air line explosion | | |
| | (iii) Stroke – bore ratio | | |
| | (iv) Thermal stresses in I.C. Engines crank shaft | | (4 x 5 = 20) |
- IX. Sketch and describe a Jerk type fuel pump. Make comparative study on Jerk type pump and Common rail system. (20)
- OR**
- X. Write notes on :
- | | | | |
|--|---------------------------------|--|--------------|
| | (i) Viscosity of fuel | | |
| | (ii) Flash point | | |
| | (iii) Variable injection timing | | |
| | (iv) Vibration in I.C. Engines. | | (4 x 5 = 20) |