

***B. Tech Degree VIII Semester Examination in  
Marine Engineering, December 2007***

**MRE 805 ADVANCED MARINE HEAT ENGINE (Co – Cycles)**

Time : 3 Hours

Maximum Marks : 100

- I. Discuss the features of Combined Gas Turbine and Steam Turbine cycles. Explain with a Schematic diagram the working of a combined Cycle Power Plant. (25)
- OR**
- II. Explain the methods of improving thermal efficiency of a co-cycle plant. Briefly describe Free Piston Gas generators. (25)
- III. Describe the difference between Axial flow compressors and Rotary Compressors. What are the limitations in maintaining the exhaust gas temperature of Gas turbine and how optimization of energy is attained with co-cycle plant? (25)
- OR**
- IV. Considering single shaft arrangement of a Gas turbine, describe the functions of its various segments. (25)
- V. Explain the advantages of Co-cycle operation of a plant over conventional system. (25)
- OR**
- VI. Write short notes on :
- (i) Liquid fuels (5)
  - (ii) Fuel blending for optimum combustion (5)
  - (iii) Atomization (5)
  - (iv) Flame Stability (5)
  - (v) Design features of combustion chamber. (5)
- VII. Sketch and describe a compact Heat Exchanger. (25)
- OR**
- VIII. Write notes on :
- (i) Air Pre-heater (12)
  - (ii) Oil Heaters. (13)

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