Total No. of Questions : 8, *[Total No. of Printed Pages : 2*

Roll No .....

ME-6002 (CBGS)

B.E. VI Semester

Examination, May 2018

Choice Based Grading System (CBGS)

Thermal Engineering and Gas Dynamics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Define Boiler and how are Boilers classified. 4

   b) Explain with the help of neat diagram any one of following Boiler 6

      i) Lamont Boiler ii) Benson Boiler

   c) Write the difference between subcritical and super critical Boiler. 4

2. a) What do you understand by Boiler Draught and classify the draught? 4

   b) Define and explain Equivalent Evaporation (Me). 6

   c) What are the heat losses which occur in Boiler Plant? 4

OR

In a Boiler test 1250 kg of coal are consumed in 24 hours. The mass of water evaporated is 13000kg and mean effective pressure is 7 bar. The feed water temperature was 40°C heating value of coal is 3000 kJ/kg. Enthalpy of 1 kg of steam at 7 bar is 2570.7 kJ. Determine 14

i) Equivalent evaporation per kg of coal

ii) Efficiency of boiler

3. Describe the different operations of Rankine cycle with neat diagram. Derive the expression for efficiency. 14

4. a) State the methods of improving thermal efficiency of Rankine cycle. 7

   b) Write the limitations of carnot cycle. 7

5. a) Define mach number write the significance of mach number. **rgpvonline.com** 6

   b) Define following 8

      i) Mach cone ii) Stagnation

      iii) Critical pressure ratio

6. a) Describe with neat sketch the construction and working of a single stage single acting reciprocating compressor. 7

   b) What do you mean by volumetric efficiency of a compressor. 7

7. a) Define steam condenser. Write the classification of condensers. 7

   b) State the comparison between jet and surface condensers. 7

8. a) Define cooling towers. Write the various types of cooling towers used in power plants. 7

   b) What is mean by steam Nozzle? Explain various types of nozzles. 7

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