Roll No ....

ME-6002 (CBGS)

B.E. VI Semester

Examination, November 2019

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) Describe high pressure boiler 'lamont'.
   b) What are the factors considered in drawing heat balance sheet in boiler.

2. a) Explain three boiler mountings and accessories.
   b) Explain the working of benson boiler.

3. a) Draw and explain vapor Carnot cycle what are its limitations.
   b) Explain with diagram the effect of boiler and condenser pressure on the efficiency of ranking cycle.

4. a) A steam turbine with an internal efficiency of 90% receives steam at 7 MPa and 550°C and exhausts at 20 KPa. Determine the turbine work. exhaust enthalpy and exit quality of steam.
   b) Express the overall efficiency of a steam plant as the product of boiler. turbine, generator and cycle efficiencies.

5. a) Explain the following term related to gas dynamics
   i) Normal shock
   ii) Diffusers.

b) Derive the conditions for maximum output of a gas turbine using a reheater and regenerator.

6. a) Explain the effect of clearance on volumetric efficiency of compressor with diagram.
   b) Describe the working of centrifugal compressors.

7. a) Derive the condition for minimum workdone in a multistage compressor. http://www.rgpvonline.com
   b) Define the following terms related to compressor.
   i) Isentropic efficiency.
   ii) Isothermal efficiency.
   iii) Mechanical efficiency.

8. a) What is back pressure explain its effect on plant performance.
   b) Derive the conditions for maximum discharge in nozzles.

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