

Roll No

ME-6002 (CBGS)**B.E. VI Semester**

Examination, May 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.
iii) The use of steam property table and molier chart is permitted in examination.

1. a) Explain the working principle of high pressure boiler. What are its advantages?
b) How do you assess the performance of boiler?
2. a) What are types of fuels for steam generator?
b) Discuss the various locations of ID and OD fans for producing draught.
3. a) Explain modified ranking cycle.
b) What is regeneration? Explain its advantage.
4. A steam turbine plant is supplied with steam at a pressure of 17 bar and superheated to 100°C. The exhaust pressure is 0.06 bar. The temperature of the condensate in the hot well is 33°C ($V_f=0.001\text{m}^3/\text{kg}$). If the measured steam condensate is 5kg/kWh and if the generator efficiency is 96%. What is the absolute thermal efficiency of the whole boiler and turbine plant.

5. Explain the following
 - i) Mach cone
 - ii) Stagnation properties
6. a) Determine the work input for single stage compression with clearance.
b) Explain the working of a rotary compressor.
7. a) Why is a convergent divergent nozzle generally used in steam turbine? How do you select a nozzle?
b) Discuss the effect of back pressure on the performance of plant.
8. Write short notes on any three.
 - a) Ash handling of thermal plant
 - b) Binary vapour cycle
 - c) Advantages of multistaging
 - d) Types of cooling towers
 - e) Normal shock

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