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Roll No .....

**ME-5001 (CBGS)****B.E. V Semester**

Examination, November 2018

**Choice Based Grading System (CBGS)****Turbo Machinery***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) Explain the difference between an impulse and a reaction turbine. 7  
b) Write the application of second Law of Thermodynamics in Turbo Machines. 7
2. a) Explain in brief pressure compounding in impulse steam turbine. 7  
b) What do you mean by Governing? Discuss the various methods of steam turbine governing in short. 7
3. The velocity of steam at inlet to a single row impulse turbine is 400 m/s and nozzle angle is  $20^\circ$ . The mean blade speed is 150 m/s and the axial thrust on the blade is estimated to be zero make calculations for: 14  
a) Inlet and outlet angles of moving blades.  
b) Power developed for a steam flow rate of 1.5 kg/s.  
c) Magnitude and direction of velocity of steam at exit.  
Neglect the effect of friction when passing through blade passages.

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4. a) How do you classify the hydraulic turbines? 7  
b) What are unit quantities of a hydraulic turbomachine? Explain their importance. 7
5. A Pelton wheel is to be designed for the following specifications:  
Shaft power = 11,772 kW; Head 380 metres; speed = 750 r.p.m.; overall efficiency = 86%; jet diameter is not to exceed one - sixth of the wheel diameter. Determine:  
i) The wheel diameter  
ii) The number of jet required  
iii) Diameter of the jet.  
Take  $K_v = 0.985$  and  $K_u = 0.45$  14
6. a) Compare the axial flow and centrifugal compressors. 7  
b) Define surging and efficiency of Axial flow compressor. 7
7. With the help of neat sketch, explain fluid coupling and Torque converter. https://www.rgpvonline.com 14
8. Write short notes any three of the following. 14  
a) Hydraulic press  
b) Hydraulic intensifier  
c) Degree of reaction of steam turbine  
d) Specific speed of a turbine  
e) Principle of centrifugal blower

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