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

Roll No .....

MMTP-302(A)

M.E./M.Tech. III Semester

Examination, June 2016

Gas Flow Through Turbo Machines (Elective-II)

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. Deduce Euler's equation and state the assumptions made before driving the equations.

2. Explain with example following terms :
   Source, Sink, Vortex, Doublet, Super position of the pattern

3. a) Explain Kutta-Joukowski profile.
   b) Explain the concept of development of drag and lift on connected to aerofoil.

4. Deduce Navier-Stokes equation and give exact solution of steady flow problems.

5. a) How Laminar Boundary layer differs with turbulent boundary layer?
   b) Write a brief note on flow through pipes and over flat plate.

6. Explain the concept of Fanno flow and Rayleigh line flows, what are its applications.

7. a) Explain Prandtl meyer and Rankine Hugoniot relations.
   b) Explain strength of shock waves.

8. Write short notes on followings :
   a) Surging and chocking
   b) Radial Equilibrium equations
   c) Vortex flow through turbo machines
   d) Losses in turbo machinery

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