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Code No: 153SA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, October - 2020
FLUID MECHANICS AND HYDRAULIC MACHINERY
(Electrical and Electronics Engineering)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1. Develop the expression for the relation between gauge pressure inside a droplet of liquid and the surface tension. [15]

2. Explain uniform flow with source and sink. Obtain expression for stream and velocity potential functions. [15]

3. Define moment of momentum equation. Where this equation is used? Write the differences between momentum equation and impulse momentum equation? [15]

4. What do you mean by equivalent pipe? Obtain an expression for equivalent pipe. [15]

5. A jet of water of diameter 7.5 cm strikes a curved plate at its centre with a velocity of 20 m/s. The curved plate is moving with a velocity of 8 m/s. The jet is deflected through an angle of 165^0. Assuming the plate smooth find: a) The force exerted on the plate in the direction of the jet b) Power of jet c) Efficiency of the jet. [15]

6. What is meant by hydro electric power station? Discuss the elements of it. [15]

7. A water turbine has a velocity of 6 m/s at the entrance to the draft-tube and a velocity of 1.2 m/s at the exit. For friction losses of 0.1 m and tail water 5 m below the entrance to the draft tube, find the pressure head at the entrance. [15]

8. Define the specific speed of a centrifugal pump. Derive an expression for same. [15]

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