Department of Civil Engineering, IIT Delhi

Minor Test II

CEL 451

Water Power Engineering

Time: 9.30-10.30 Date: 19-03-2016 Room No. LH316 Total Marks: 20

Assume any Missing Data No Extra Time is allowed **Submit on Time**

1. Derive the Specific Speed of a centrifugal pump. [Marks=3]

2. Derive the differential equation of a surge tank with figure. [Marks=3]

3. A rectangular channel 3m wide has a flow of 3.6cumec with a velocity of 0.8 m/s. If a sudden release of additional flow at the u/s end of the channel causes the depth to rise by 50%, determine the absolute velocity of the resulting surge and the new flow rate. [Marks=4]

4. Find the power required to drive a centrifugal pump which delivers 0.04 m3/s of water to a height of 20m through a 15 cm diameter pipe and 100m long. The overall efficiency of the pump is 70% and f is 0.15. [Marks=4]

5. Short Notes:
   (a) Classification of Wave
   (c) Surge Tank

[Marks=6]