Code No: RT22012 **R13** SET - 1

II B. Tech II Semester Supplementary Examinations, April/May - 2019
HYDRAULICS AND HYDRAULIC MACHINERY
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Explain about Specific energy.
   b) Write about dynamic similarities.
   c) Classify different types of turbines according to size.
   d) What is draft tube?
   e) Discuss about Governing of turbines.
   f) What are the different Hydropower plants?

PART -B

2. a) Derive the condition for most efficient Trapezoidal channel section for uniform flow.
   b) Distinguish between GVF and RVF.

3. a) Explain about Rayleigh's method.
   b) Explain any three dimension less numbers.

4. A Pelton wheel has a mean bucket speed of l0 meters per second with a jet of water flowing at the rate of 700 liters/s under a head of 30 meters. The buckets deflect the jet through an angle of 160^0. Calculate the power given by water to the runner and the hydraulic efficiency of the turbine. Assume coefficient of velocity as 0.9g.

5. The centrifugal pump having outer diameter equal to two times inner diameter is running at 1000 rpm with working head of 40 m. Velocity of flow is constant and equal to2.5 m/s. The vanes are set back at an angle of 40^0 at outlet. If outer diameter of Impeilar is 50 cm and the width at outlet is 5 cm. Then determine vane angle at inlet Impeller power and manometric efficiency. Assume waters enter radially at inlet.

6. a) Draw characteristic curves for centrifugal pump.
   b) Explain about slip of reciprocating pumps.

7. Explain hydroelectric power in India and estimation of hydro power potential with flow duration curve.
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