M.MECH ENGG. 1ST SEMESTER EXAMINATION 2017

Subject : ADVANCED HYDRO POWER

Time: Three Hours   Full Marks :100

*Answer any **five** questions*

1. a) How would you place hydropower in the mix of different powers ?

b) Explain hydrologic cycle with a neat diagram.

c) What are the basic advantages of Hydel Power ?

d) Explain detention and depression storage .   3 + 9 +4 +4

2, a) Describe the principle of working of an evaporation pan .

b) Discuss Horton's equation for infiltration along with infiltration curve.

c) Explain the method of ϕ-index.

d) When a run-of-river plant operates as a peak load station with a weekly load factor of 20 %, all its capacity is firm capacity. What will be the minimum flow in the river so that station may serve as the base load station? It is given that

Rated installed capacity of generator = 10,000 kW

Operating head   = 15m

Plant efficiency   = 80 %

Estimate the daily load factor of the plant if the stream flow is 15 cumec

                                                                    6+ 4 +3 +7

3. a) Explain the phenomenon of water hammer.