DIPLOMA IN CIVIL ENGINEERING (DCLEVI)

Term-End Examination

December, 2017

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BICEE-007 : WATER POWER ENGINEERING

Time : 2 hours   *Maximum Marks : 70*

Note : *Question no. 1 is* **compulsory.** *Attempt any* **four**
from questions no. 2 to 8. All questions carry equal
marks. Assume any suitable data, if missing.

1. State *True* or *False*.   *7×2=14*

    (a) The power generated from fuels like coal,
         oil, etc. to produce steam for a steam
         turbine is called thermal power.

    (b) Thermal power is more environment
         friendly than hydro power.

    (c) The height of a diversion dam should be
         very high.

    (d) Recording type rain guages are also called
         as Simon's guage.

(e) Earthen dams are less susceptible to failures as compared to rigid dams.

(f) A runoff river scheme or hydel scheme with a very low dam in which head of water is less than 15 mm is called low head hydel scheme.

(g) Penstocks are low pressure pipes designed to take off water from surge tank.

2. What is Hydrology ? With neat sketches, explain hydrologic cycle.   *4+10=14*

3. Discuss the classification of a Hydro-Power Scheme based on hydraulic characteristics.   *14*

4. What is Flow Duration Curve ? With neat sketches, discuss its uses.   *14*

5. With neat sketches, explain the components of a hydroelectric project.   *14*

6. Discuss the various classifications of Dams. What are the factors to be considered for selection of site for dam construction ?   *8+6=14*

7. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$

   (a) Surge Tanks

   (b) Penstocks

   (c) Earthen Dams

   (d) Storage and Pondage

   (e) Selection of Turbine

   (f) Hydrometeorology

8. A 10,000 kW runoff river plant, when serving as peak load station, operates at 25% load factor. The expected plant efficiency is 75% when working under a head of 20 m.
   Evaluate : $2 \times 7 = 14$

   (a) Minimum discharge in the stream so as to serve as base load station.

   (b) Maximum load factor when stream discharge is 30 cumecs.