

**DIPLOMA IN CIVIL ENGINEERING  
(DCLEVI)**

**Term-End Examination**

**June, 2016**

00946

**BICEE-007 : WATER POWER ENGINEERING**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** Answer any **four** questions in all. Question no. 1 is **compulsory**. Assume missing data, if any. Use of scientific calculator is permitted.

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1. Choose the correct answer from the following four alternatives :  $7 \times 2 = 14$
- (a) Which of the following is a Rigid dam ?
- (i) Earthen dam
  - (ii) Rockfill dam
  - (iii) Concrete dam
  - (iv) Rockfill composite dam
- (b) The storage capacity of a reservoir is determined by
- (i) Mass curve method
  - (ii) Ration method
  - (iii) Calendar year method
  - (iv) None of the above

- (c) The safety valve of a dam is
- (i) Spillway
  - (ii) Drainage gallery
  - (iii) Outlet sluice
  - (iv) Inspection gallery
- (d) Hydraulic jump is widely used in dissipation of energy in
- (i) Ogee spillway
  - (ii) Chute spillway
  - (iii) Side channel spillway
  - (iv) All of the above
- (e) Function of surge tank is to
- (i) Both store and supply water
  - (ii) Store water on load rejection
  - (iii) Furnish additional water during increased load demand
  - (iv) All of the above
- (f) If the load factor is high, the unit cost of energy is comparatively
- (i) High
  - (ii) Low
  - (iii) Same
  - (iv) None of the above

(g) The minimum power which a hydropower plant will generate throughout the year is called

- (i) Firm power
- (ii) Power plant capacity
- (iii) Secondary power
- (iv) Water power

2. Describe the hydrologic cycle using a neat sketch. What is the necessity of hydrologic cycle in Water Power Engineering ? 14
3. What do you understand by Flow Duration Curve and Power Duration Curve ? How are they constructed and why are they necessary for hydropower development ? 14
4. Discuss, in detail, the classification of hydropower plants based on purpose and hydraulic features. 14
5. Describe in detail the pumped storage plant. 14
6. Briefly discuss the classification of dams and also discuss the factors to be considered for selection of site for the construction of dams. 14

7. (a) Discuss the classification of penstocks. 7
- (b) Explain the Non-automatic gates and Automatic gates with reference to water conveyance system. 7
8. Define the following : 7×2=14
- (a) Intake
  - (b) Conveyance System
  - (c) Forebay
  - (d) Surge Tank
  - (e) Penstock
  - (f) Tail Race
  - (g) Buttress Dam
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