

00567

DCLEVI  
DIPLOMA ENGINEERING

Term-End Examination

June, 2013

BICEE-007 : WATER POWER ENGINEERING

Time : 2 hours

Maximum Marks : 70

*Note : Answer five questions in all and question No. 1 is compulsory.*

1. Select one correct answer from the following :  $7 \times 2 = 14$
- (a) The primary power at a hydro - plant is determined considering :
- (i) minimum stream flow
  - (ii) available pondage
  - (iii) probable load curve
  - (iv) all of these
- (b) Function of a Surge Tank is to :
- (i) store water on load rejection
  - (ii) furnish additional water during increased load demand
  - (iii) both to store and supply water
  - (iv) none of the above
- (c) A pumped storage hydroelectric plant is a :
- (i) high head plant
  - (ii) run-off river plant
  - (iii) base load plant
  - (iv) peak load plant

- (d) Pressure relief is not effective for :
- (i) positive water hammer
  - (ii) negative water hammer
  - (iii) none of these
  - (iv) both of these
- (e) Dependability of a run off-river plant project is :
- (i) 100%                      (ii) 90%
  - (iii) 75%                      (iv) 60%
- (f) Maximum pressure occurs in full flowing power tunnel at the time of :
- (i) load rejection
  - (ii) load acceptance
  - (iii) Headrace
  - (iv) Tailrace
- (g) Power plant used to take peak load has :
- (i) high load factor
  - (ii) low load factor
  - (iii) average load factor
  - (iv) none

2. (a) Define hydrology. What role does hydrology play in the water power planning ? 7
- (b) What is the practical usefulness of rainfall data analysis ? 7

3. (a) Discuss power duration curve and its role for the assessment of amount of hydropower available at a site. 7
- (b) Why is storage at a power plant necessary ? How does storage differ from pondage and in which respects ? 7
4. (a) Discuss hydro and thermal power generation in comparative form. 7
- (b) What are the various factors considered in planning hydropower development ? 7
5. (a) What preliminary investigations should be conducted for the selection of a dam site ? 7
- (b) How will you check the stability of the gravity dam section for reservoir full condition ? 7
6. (a) What do you mean by a 'spillway' and why it is necessary in dam construction ? 7
- (b) With the help of neat sketches describe the various types of spillways. 7
7. What important forces must be taken into account in designing the anchors for penstocks ? Discuss the relative merit and demerits of the exposed and buried penstocks. 14