

B. Tech. 7th Semester (Civil) F. Scheme Examination,

December-2017

HYDRO POWER ENGG.

Paper-CE-451-F

Time allowed : 3 hours] [Maximum marks : 100

*Note : Question No. 1 is compulsory and attempt one question from each of the four sections. All questions carry equal marks.*

1. (a) Classification of hydropower stations.  
(b) Advantage of pump storage plant  
(c) Define efficiency of pump storage plants.  
(d) Describe types of turbine.  
(e) Describe basic features of hydropower plants.

4×5=20

**Section-A**

2. (a) What do you mean by water power ? Compare the thermal power with water power. 10  
(b) What is the necessity to determine future demand of load ? Explain in detail. 10
3. (a) What is load duration curve ? Explain with sketch. Discuss its use.  
(b) What do you mean by "run of river plants". Describe the general layout of river of river plants.

10

**Section-B**

4. Describe the following : 20
- (i) Prediction of load
  - (ii) Load curve
  - (iii) Load duration curve
  - (iv) Electrical load on hydropower stations.
5. Describe different types of surge shafts. Also explain the salient features of design of surge shaft. 20

**Section-C**

6. (a) What are the various types of surge shaft ? Discuss its hydraulic design criteria. 10
- (b) Give classification of pen stock. Explain each. 10
7. What do you understand by specific speed of turbines ? Describe the general criterion for the selection of turbine. 20

**Section-D**

8. (a) Write short note on design theory of draft tube and cavitation in turbines in detail. 10
- (b) What do you mean by water conveyance system. Describe in detail. 10
9. Write short notes on :
- (a) Specific speed of turbines.
  - (b) Cavitation in turbines. 20