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B.Tech. EXAMINATION, May 2017

(Eighth Semester)

(Old Scheme) (Re-appear Only)

(CE)

CE-464

WATER POWER ENGG.

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks. Assume, if any missing data.

1. (a) Discuss about role of storage and pondage in water power plant. **10**

(b) Why it is necessary to predict the future load demand ? What are the methods of load forecasting ? **10**

2. (a) Two turbo-generators each of capacity 20,000 kW have been installed at a hydel power station. During a certain period the load on the hydel plant varies from 15,000 to 35,000 kW, calculate :

(i) Total installed capacity

(ii) Load factor

(iii) Plant factor

(iv) Utilization factor. **10**

(b) What do you understand by 'flow duration curve' ? How is it prepared ? **10**

3. (a) What are the advantages of pumped storage plants ? **10**

(b) Describe the Run-of-River plants. What are its components ? **10**

4. (a) Mention the characteristics of low medium and high head hydropower plants. **10**

(b) Define valley dam plants. **10**

5. (a) Classify the various types of penstocks. **10**

(b) What do you mean by economical diameter of penstocks ? How can it be found out ? **10**

6. (a) Give the design features of water carrying tunnels. **10**

(b) Discuss about the lining of channels. **10**

7. (a) What do you understand by water hammer in a pipeline ? Derive an expression for it, in case of elastic pipe. **10**

(b) Explain the function of Surge tank. **10**

8. Write short notes on the following : **20**

(a) Channel Surge

(b) Behaviour of Surge tank.