

B.Tech. (Civil) Elective- III 7th Semester (G-scheme)

Examination, December-2022

HYDRO POWER ENGINEERING

Paper - PEC-CEEL-411-G

Time allowed : 3 hours]

[Maximum marks : 75

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

Note: Attempt five question in all, selecting one question from each section. Question no. 1 is compulsory. All questions carry equal marks.

1. Describe the following :

$6 \times 2\frac{1}{2} = 5$

- (a) Unit discharge
- (b) Conventional source of energy
- (c) Types of cross-drainage work
- (d) Specific speed
- (e) Types of Turbines
- (f) Plant Factor

Section - A

2. (a) What do you mean by water power? Compare the thermal power with water power.
(b) What is the necessity to determine future demand of load? Explain in detail. 15
3. Explain the points to be understood before selection of site for hydropower plant and also explain the prediction of load. 15

Section - B

4. (a) Explain the classification of hydropower stations.
(b) What is the difference between storage and pondage. 15
5. What do you mean by pump storage plant? Also explain the advantages of pump storage plant for short peak load duration. 15

Section - C

6. Explain the functions and types of Intake Structures. 15
7. (a) For rigid and elastic pipe, derive the expression for water hammer pressure.
(b) Explain the classification of penstock. What is economical diameter of penstock? How it can be found? Also describe the design criteria of penstock.