

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

**CLASS: B.Tech
BRANCH: CSE/EEE**

**SEMESTER : V
SESSION : MO/2025**

SUBJECT: ME393 ELEMENTS OF HYDEL AND THERMAL POWER PLANT

TIME:02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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Q.1(a)	Explain two advantages and two disadvantages of a hydel power plant over a thermal power plant.	[2] 1	2
Q.1(b)	Discuss the factors which should be considered while selecting a site for a hydel power plant. Justify your answer, citing an existing hydel power plant.	[3] 1	3
Q.2(a)	Explain with the help of a sketch the essential elements of a hydel power plant.	[2] 1	2
Q.2(b)	Explain with a neat sketch a pumped storage power plant. What are its advantages?	[3] 1	2
Q.3(a)	Classify the hydro-turbines according to head, power, size, and specific speed.	[2] 2	3
Q.3(b)	Explain with a neat sketch the principle of operation of a Pelton turbine.	[3] 2	2
Q.4(a)	What is the role of a governor in a hydel power plant? Briefly discuss the governing mechanism of impulse turbine along with a suitable sketch.	[2] 2	2
Q.4(b)	A turbine develops 10 MW under a head of 2m at 150 rpm. What is the specific speed of the turbine? What will be its normal speed under a head of 25 m?	[3] 2	2
Q.5(a)	Discuss the factors which should be considered while selecting a site for a thermal power plant. Justify your answer by citing an existing thermal power plant.	[2] 3	3
Q.5(b)	Explain how the operations of hydroelectric and thermal power plants in a power system can be combined economically.	[3] 3	2

:::24/09/2025:::M