JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

B.Tech- VII Semester (CSE/IT/ECE/BT/BI)

COURSE CODE (CREDITS): 22B1WCE733 (3) MAX. MARKS: 35

COURSE NAME: PERENNIAL POWER STRUCTURES

COURSE INSTRUCTORS: DR. NIRAJ SINGH PARIHAR MAX. TIME: 2 Hours

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Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

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Q.No	Question	CO	Marks
Q1	Provide an outlook of the energy derivation from oceans. Discuss the various forms of power generation from oceanic sources with their working principle.	CO1,2	2+4
Q2	Describe the functional working of any one nuclear reactor with the help of a well described figure.	CO2,4	10
Q3	A nuclear reactor uses carbon as moderator. If the initial energy of the neutron is 3 MeV, evaluate: (a) The ratio of energies per collision (b) The number of collisions required to reduce the energy of neutron to 0.1eV	CO2, 3	5
Q4	Classify the hydropower projects in brief on different grounds. Discuss the major challenges faced and the applied solutions during construction of the Three Gorges hydropower project.	CO4,5	6
Q5	The quantity of water available for hydroelectric power station is 250 m^3/sec under a head of 1.6 m. If the speed of the turbine is 50 rpm and efficiency is 82%, determine the available power and number of turbine units required for a specific speed of 740. Suggest a suitable turbine for the condition with reason.	CO2,3	4
Q6	List the major characteristics and constructional features of Noor Ouarzazate solar facility and its environmental and social impact.	CO4,5	4