Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2021

Course: Power Plant Engineering **Semester: VI**
Program: B. Tech. (ME) **Time 03 hrs.**
Course Code: MECH 4013 **Max. Marks: 100**

SECTION A

1. **Each Question will carry 5 Marks**
2. **Instruction: Complete the statement / Select the correct answer(s)**

S. No.	**Question**	**CO**
Q 1	How the hydro-electric power plants are classified?	**CO1**
Q 2	Distinguish between Atomic number and mass number.	**CO1**
Q 3	On what factors thermal efficiency of the steam plant depends?	**CO1**
Q 4	Which factors are considered for deciding the size of the economizer?	**CO1**
Q 5	Why the starting of diesel plant is more difficult?	**CO1**
Q 6	What is chain reaction?	**CO1**

SECTION B

1. **Each question will carry 10 marks**
2. **Instruction: Write short / brief notes**

Q 1	A power plant supplies the loads having maximum demands of 40 MW, 50MW and 30MW respectively. The load factor of the plant on the basis of annual load curve is 60% and the diversity factor of the load is 1.2. Determine (i) The maximum load on the power plant (ii) The capacity of the power plant required to take the loads and (iii) Annual energy supplied by the power plant. Assume any data, if missing.	**CO4**
Q 2	Draw a neat diagram of CANDU type reactor and explain its working and give its advantages and disadvantages over other types of reactor.	**CO3**
Q 3	The runoff data of a river at a particular site is tabulated below:	**CO4**

Month	Mean discharge in million of cu m per month	Month	Mean discharge in million of cu m per month
J (Jan)	80	J	200
F	30	A	100

	M	40	S	230	
	A	20	O	150	
	M	0	N	80	
	J	100	D	90	
	(i) Draw a hydrograph and find the mean flow. (ii) Also draw the flow duration curve. (iii) Find the power in MW available at mean flow if the head available is 100m and overall efficiency of generation is 80%. Take each month of 30 days. Assume any data, if missing.				
Q 4	Which are the non-conventional sources of energy and why they are seriously thought throughout the world?				**CO2**
Q 5	Draw a neat sketch and explain the working of a governing system used for closed cycle gas turbine plant. OR How the ash produced carries the importance in the selection of thermal power plant site?				**CO2**
	Section C **1. Each Question carries 20 Marks.** **2. Instruction: Write long answer.**				
Q1	Discuss the different types of nuclear wastes. Which are more dangerous and why? OR Draw a neat line diagram of Benson boiler and discuss its relative merits and demerits.				**CO3**