BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BTECH **SEMESTER : III**
BRANCH: EEE **SESSION : MO/2024**

SUBJECT: EE203 ELECTRIC ENERGY GENERATION AND CONTROL

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Examine with proper justification if the thermal power plants are recommended as base load plant or peak load plant. Analyze the significance and utilization of hot flue gas path in steam power plant.	[5]	CO1	4
Q.1(b)	Identify and analyze the operation of feed water, cooling water and steam circuit in thermal power plant.	[5]	CO1	1,2, &4
Q.2(a)	Estimate the constructional and operational differences between low head and high head hydro power plants.	[4]	CO1	1&2
Q.2(b)	Analyze the governing mechanism of Pelton Wheel turbine-based Hydro power plants (i) with increase of loading condition, (ii) with decrease of loading condition. Identify for which type of heads such turbines are recommended.	[6]	CO2	4
Q.3(a)	Analyze the control mechanism for nuclear power station, to prevent explosion.	[4]	CO2& CO3	4
Q.3(b)	Analyze the operation of reactor, where water is used both as coolant and moderator. Judge the cycle it follows for its operation and specific precautionary measures.	[6]	CO3	1,4& 5
Q.4(a)	Identify and outline using proper diagram the major parts required for operation of diesel power plant.	[5]	CO3	1&2
Q.4(b)	Analyze the operation of 4-stroke cylinder diesel engine and estimate it's differences with respect two 2-stroke cylinder engines.	[5]	CO3	1&4
Q.5(a)	Analyze and estimate the significance of V_{oc}, I_{sc}, V_m and I_m using I-V characteristics, when PV cells are connected in (i) series (ii) parallel for sustainable energy generation.	[5]	CO4	4
Q.5(b)	Analyze how maximum power point can be attained from solar energy source using any two MPPT technique. Identify the advantages and disadvantages of one methodology over the other.	[5]	CO4 & CO5	4

::::::21/11/2024::::::E