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Model Question Paper 2022-23 (CBCS Scheme)
Fifth Semester B.E. Degree Examination (Mechanical Engineering)
ENERGY ENGINEERING

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any FIVE full questions, choosing at least ONE question from each MODULE

Module -1			Bloom's Taxonomy Level	Marks	CO
Q.01	a	Explain ash handling system with neat sketches.	L2	10	CO1
	b	Explain the working of Velox boiler with a neat sketch.	L2	10	CO1
OR					
Q.02	a	Explain the following: i) Super heaters ii) Desuper heater iii) Economizers iv) Air pre heaters	L2	10	CO1
	b	With a neat sketch explain the layout of diesel power plant.	L2	6	CO1
	c	Explain the method of starting of Diesel engines.	L2	4	CO1
Module-2					
Q.03	a	Explain Solar radiation measurement using Pyrheliometer and Pyranometer.	L2	10	CO2
	b	Explain with a neat sketch solar flat plate collector and Focussing collectors.	L2	10	CO2
OR					
Q.04	a	Explain with a neat sketch Biogas production from organic wastes by anaerobic fermentation using any type of Biogas plants	L2	10	CO2
	b	Explain the factors affecting bio gas generation. Also explain Thermal gasification of biomass using updraft.	L2	10	CO2
Module-3					
Q. 05	a	Explain basic working principle of Tidal power. And list characteristics of tides.	L2	10	CO3
	b	Explain with neat sketch double basin tidal power plant, also list the advantages Tidal power plant.	L3	10	CO3
OR					
Q. 06	a	Explain types of wind turbines with a neat sketch	L2	10	CO3
	b	What are the major problems associated with wind power? What are the advantages of horizontal axis wind turbine over vertical axis wind turbine. ?	L3	10	CO3
Module-4					
Q. 07	a	Explain the applications (i) Surge tank (ii) Spill way (iii) Draft tube	L2	10	CO3
	b	At a particular site the main discharge (in millions of m ³) of a river in 12 months from January to December are 30,25,20,0,10,50,80,100, 65, 45 and 30 respectively. Draw flow duration curve. Also estimate power developed in MW if available head is 30m and overall efficiency generation is 87.4%. Assume each month of 30 days.	L3	10	CO3
OR					
Q. 08	a	Explain the classification of hydroelectric plants and also explain water hammer.	L2	10	CO3
	b	Explain the working principle of OTEC Rankine cycle plant. What are the problems associated with OTEC.	L3	10	CO3

Module-5					
Q. 09	a	Explain general components of nuclear reactor and materials.	L2	10	CO3
	b	With the help of a neat sketch, explain the working of Boiling water reactor. State its advantages and disadvantages.	L3	10	CO3
OR					
Q. 10	a	Explain nuclear waste and radioactive waste disposal methods	L2	10	CO3
	b	With a neat sketch explain sodium graphite reactor. State its advantages and disadvantages.	L3	10	CO3