

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

**CLASS: MTECH
BRANCH: MECHANICAL**

**SEMESTER : I
SESSION : MO/2024**

SUBJECT: ME549 ENERGY SIMULATION AND MODELLING

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.
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Q.1(a)	Discuss various type of energy models.	[5] 1	2
Q.1(b)	Write short notes on national and rural energy planning	[5] 1	2
Q.2(a)	Discuss the various types and characteristics of INPUT-OUTPUT (I-O) models	[5] 2	2
Q.2(b)	Discuss the various use of I-O models and its transaction tables.	[5] 2	2
Q.3(a)	Discuss the Linear and non-linear optimization models	[5] 3	2
Q.3(b)	Outline various advantage and limitation of optimization models	[5] 3	3
Q.4(a)	Discuss the process analysis models for industrial, domestic and transport energy conservation	[5] 4	2
Q.4(b)	Outline the advantage and limitations of process analysis models	[5] 4	3
Q.5(a)	Write short notes on dynamic behavior of energy systems;	[5] 5	3
Q.5(b)	Outline the various advantages and limitations of simulation models	[5] 5	3

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