

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

**CLASS: MBA
BRANCH: MANAGEMENT**

**SEMESTER : III
SESSION : MO/2024**

SUBJECT: MT547 BUSINESS FORECASTING

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) Establish a real-life problem and show the efficacy of Forecasting techniques for better decision-making. Validate your solution with the proper approach. [10]

Q.2(a) The following table shows the average monthly coal production in millions of tonnes from 1997 to 1996. [10]

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Average Monthly Production	50.0	36.5	43.0	44.5	38.9	38.1	32.6	41.7	41.1	33.8

Determine (i) 4-yearly centred Moving Average values, (ii) Trend value

Q.3(a) Design (i) a *Research Plan and Sampling Scheme*, and (ii) *Frame a Questionnaire for data collection* for the following Problem on pharma surveys; identifying focus groups: [5+5]
"HIMALAYA is a healthcare company based in Hyderabad that provides pharma solutions to address the evolving needs of patients. With a diversification strategy, the company wants to enter the wellness products market, keeping its brand value in the Pharma market".

OR

Identify i) a suitable Forecasting methodology for any of the following situations and ii) explain how it will be implemented. (May use proper approach for validation) (ANY ONE)

- Expanding Production Capacity in a Steel Plant.
- Estimating the demand for Garments during the festival.
- Human resources planning for an ITES product.

Q.4(a) Explain the usefulness of calculating Forecasting Error in a real-life situation. [5]

Q.4(b) Given the forecast and actual demand, compute the Tracking Signal and MAD relating to forecasting error. Interpret the results. [5]

Year	1	2	3	4	5	6
Forecast Demand	78	75	83	84	88	85
Actual Demand	71	80	101	84	60	73

Q.5 Discuss any TWO relating to Business Forecasting:

[5x2=10]

1. ARIMA models
2. Box Jenkins methodology
3. Naïve forecasting
4. Delphi Method

Alignment of CO and Bloom's Taxonomy (Hierarchical ordering of Cognitive skills)

Question No.	Alignment of CO and Bloom's Taxonomy
1	Develop a clear understanding of concepts of business forecasting and its usefulness in the real business world. <i>[(1) Basic concepts/knowledge]</i>
2	Given the Problem, comprehend suitable forecasting / moving average techniques for business forecasting. <i>[(2) Comprehension]</i>
3	Explain the proper questionnaire format forecasting design for effective consumer surveys; identify focus groups. <i>[(3) Collection of real-life primary data]</i>
4	Explain the mechanism for better forecast techniques/refinement and errors associated with Forecasting Error. <i>[(4) Precision of Forecasting Error / Analysis]</i>
5	Discuss advanced methods of Forecasting analyses and their application to Engineering and Management Science. <i>[(5) Synthesis / Evaluation]</i>

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