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**Number of printed pages 02**

Semester III (B.Tech)

Er. No. 20183088

Academic Year: 2021-22

# Jaypee University of Engineering & Technology, Guna

## T-2 (Odd Semester 2021)

## 18B11HS312 - TECHNIQUES FOR DECISION MAKING

Maximum Duration: 1 Hour 30 Minutes | Maximum Marks: 25

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Notes:

1. This question paper has five questions.
2. Write relevant answers only.
3. Do not write anything on question paper (Except your Er. No.).
4. Use of calculators is permitted.

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**Q1.** Elaborate the steps of the forecasting process. Mention the elements of a good forecasting system. **[4+1]**

**Q2.** The relationship between the number of tourists and revenue generation of a town is given below in the table. **[5]**

| **No. of tourists (in millions)** | 7 | 2 | 6 | 4 | 14 | 15 |
|---|---|---|---|---|---|---|
| **Revenue Generation (in 1,000,000 $)** | 1.5 | 1 | 1.3 | 1.5 | 2.5 | 2.7 |

Forecast the revenue generation when the number of tourists are 10,000,000 using simple linear regression equation.

**Q3.** A company uses the tracking signal to judge the accuracy level of the forecasting method. The company's actual sales and forecast sales are mentioned in the table below: **[5]**

| **Week** | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| **Actual Sales** | 56 | 78 | 87 | 92 | 97 | 94 |
| **Forecast Sales** | 56 | 79 | 87.71 | 91.75 | 96.68 | 98.97 |

Compute RSFE, MAD and tracking signal for each week and decide the accuracy of the forecasting technique.

**Q4.** Construct index numbers for the table given below using:

**(a)** Laspeyre's Method **[2]**

**(b)** Paasche's Method **[2]**

**(c)** Fisher's Ideal Index **[1]**

| Commodity | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price (Rs.) | Quantity | Price (Rs.) | Quantity |
| Wheat | 5 | 20 | 10 | 15 |
| Rice | 12 | 25 | 15 | 12 |
| Pulses | 10 | 35 | 12 | 25 |
| Bread | 5 | 47 | 5 | 32 |

**Q5. (a)** For the data given in the table below, compute simple aggregative index (base year: 2018). **[2.5]**

| Commodity | Price in 2018 (Rs.) | Price in 2019 (Rs.) |
|---|---|---|
| Cheese (100 gm) | 30 | 40 |
| Egg (per piece) | 5 | 8 |
| Potato (per kg) | 15 | 22 |

**(b)** In 2012 wheat was selling at an average price of Rs. 200 per 10 kg, cloth at Rs. 30 per meter, house rent at Rs. 15,000 per house and oil at Rs. 200 per litre. By 2013 cost of wheat increased by Rs. 50 per 10 kg, house rent by Rs. 1,000 per house and oil tripled in price. The consumer price index (CPI) for the year 2013 (with 2012 as base year) was 200. How much the price (in Rupees) of the cloth increased in 2013 as compared to 2012? **[2.5]**

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