

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER – III(New) • EXAMINATION – SUMMER - 2020

Subject Code:3730005**Date: 26/10/2020****Subject Name: Business Analytics****Time: 02:30 PM To 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks

- Q-1 a.) Explain scope of Business analytics and process of business analytics process. 07
 b.) Justify: “Business analytics is helpful in data driven decision making”. 07
- Q-2 a.) Explain organization structure of business analytics. 07
 b.) Explain simple regression analysis. 07

OR

- b.) Following are the figures of production of TV in the factory. 07
- Fit a straight line trend,
 - Estimate likely production of the factory during 2019 and 2020 by least square method.

Year	Production (in thousand)	Year	Production (in thousand)
2012	850	2016	980
2013	970	2017	1022
2014	932	2018	990
2015	860		

- Q-3 a.) Explain Monte-Carlo simulation Model. 07
 b.) Forecasting electric can opener shipments using Exponential smoothing method by using $\alpha = 0.3$, and 0.7 . 07

Time period	Month	Observed value	Time period	Month	Observed value
1	January	200	7	July	155
2	February	135	8	August	130
3	March	195	9	September	220
4	April	198	10	October	280
5	May	310	11	November	240
6	June	175	12	December	-

Carry out error analysis for $\alpha = 0.3$, and 0.7 . (By using Mean error, and Mean square error).

OR

- a.) Explain Newsvendors Model. 07
 b.) A dairy firm wants to determine the quantity of butter it should produce to meet the demand. Past records have shown the following demand pattern. 07
 The stock levels are restricted to the range 15 to 50 kg due to inadequate storing facilities. Butter costs Rs. 40 per kg and sold at Rs. 50 per kg.

Quantity Required	15	20	25	30	35	40	50
No. of Days (Demand)	6	14	20	80	40	30	10

- Construct a conditional profit table.
 - Determine the action alternative associated with the maximization of expected profit.
 - Determine EVPI.
- Q-4 a.) Explain descriptive and predictive analytics process. 07
- b.) Consumption of quarterly electric power in millions of kw hr for street lights inn India during 2014-2018 is given below: 07

Year	Q1	Q2	Q3	Q4
2014	318	218	278	250
2015	342	309	299	268
2016	367	328	320	287
2017	392	349	342	311
2018	420	378	370	334

Calculate seasonal variations by using ratio to trend method.

OR

- a.) Explain team management and management issues related to business analytics. 07
- b.) Calculate seasonal variation for Q-4 (b) by using ratio to moving average method. 07
- Q-5 a.) Explain embedded and collaborative business intelligence. 07
- b.) Explain decision making criteria under condition of uncertainty. 07

OR

- a.) Explain data storytelling and data journalism. 07
- b.) A business man has two independent investment A and B available to him but he lacks the capital to undertake both of them simultaneously. He can choose to take A first and then stop or if A is successful then take B or vice versa. The probability of success of A is 0.7 while for B it is 0.4. Both investments require an initial capital outlay of Rs. 2000; and both return nothing if he venture is unsuccessful. Successful completion of a will return Rs. 3000 and successful completion of B will return Rs. 5000. Draw the decision tree and determine the best strategy. 07
