

F4BMS(5)

Paper / Subject Code: 81903 / Business Statistics.

18

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(2 ½ Hours)

Marks : 75

Note:

- 1) Attempt all questions.
- 2) All questions carry equal marks of 15 each.
- 3) Attempt both the subparts of Question No.1
- 4) Figures to the right indicate full marks
- 5) Non Programmable calculators are allowed.

Q1A) Fill in the blanks (any 8 out of 10)

(8m)

- i) A statistical measure calculated for all objects in the population is called as _____.
(Parameter, Attribute, Variable)
- ii) When two or more characteristics are to be represented for the same set of objects, then _____ diagram is used. (Simple Bar, Multiple Bar, Subdivided Bar)
- iii) If the values of Median and Mode are 42 and 47 respectively, the value of Arithmetic Mean can be _____. (39.5, 45, 52)
- iv) If the value of co-efficient of variation is more, the consistency of the data is _____.
(More, Less, Same)
- v) If the value of Pearson's correlation co-efficient is 0.93, it can be concluded that there is _____.
(High Degree Positive Correlation, Absence of Correlation, Perfect Negative Correlation)
- vi) If the two regression co-efficients are positive, the value of correlation co-efficient must be _____.
(Negative, Positive, Zero)
- vii) Least Square Method is used to compute _____ trend. (Secular, Non Linear, Linear)
- viii) The Family Budget Method is used to calculate the _____ Index Numbers.
(Wholesale Price, Cost of Living, Simple Average of Price Relatives).
- ix) If A and B are any two events associated with an experiment, the probability of occurrence of Event A or B or both A and B is expressed as _____.
($A \cup B$, $A \cap B$, $A \setminus B$)
- x) In Decision Making problems there is only one _____. (Policy Maker, Policy, State of Nature)

Q1B) State True or False (any 7 out of 10)

(7m)

- i) Statistical survey is a scientific process of collection and analysis of numerical data.
- ii) Classification of employees according to age and salary is three way classification.
- iii) Histogram is used to represent Median graphically.
- iv) Extreme variations of the data can be indicated by the method of mean deviation
- v) The more the points are clustered around a straight line on scatter diagram, the degrees of correlation is more.
- vi) If the values of regression co-efficients are 0.7 each, then the value of correlation co-efficient is 0.35
- vii) Future Trend Values can be estimated with the help of Straight Line Trend.
- viii) Fishers Index Number uses all informations like prices p_1 , p_0 and quantities q_1 , q_0 .
- ix) Complimentary Events are Mutually Exclusive.
- x) Decision Tree calculations begins from right to left.

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Q2A) Draw a Histogram and Frequency Curve on a graph paper. (8m)

Daily Wages	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90	90 - 100	100 - 110	110 - 120
No of Workers	12	20	40	50	34	16	12	8

Q2B) If the average marks of students are 26.75, find the number of students belonging to the class interval 10 - 20. (7m)

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
No of students	3	---	15	10	5

(OR)

Q2P) Find Q_1 and Q_3 for the following distribution. (8m)

Commission	100 - 140	140 - 180	180 - 200	200 - 220	220 - 240	240 - 260	260 - 300
No of salesmen	14	45	52	80	32	23	24

Q2Q) Locate Median graphically. (7m)

Marks	10 - 12	12 - 14	14 - 16	16 - 18	18 - 20	20 - 22	22 - 24
No of students	11	17	20	22	10	10	10

Q3A) From the following regression equations $2x - y = 17$ and $4x - 3y = 1$, find mean values of x and y and correlation co-efficient. (8m)

Q3B) The following are particulars of the distribution of weights of boys and girls in a class. Find standard deviation of combined group. (7m)

Particulars	Boys	Girls
Number	100	50
Mean Weight	60 Kgs.	45 Kgs
Standard Deviation	3 Kgs	2 Kgs

(OR)

Q3P) Calculate correlation co-efficient for the following data: (8m)

Marks in Statistics	53	59	72	43	93	35	55	80
Marks in Economics	35	49	63	36	75	28	38	71

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Q3Q) For a bivariate distribution, Mean values of x and y are 25.3 and 152.4 respectively, standard deviation of x and y are 1.8 and 5.7 respectively, correlation co-efficient is 0.82. Find Regression equation of y on x and estimate y when x = 23.8 (7m)

Q4A) Fit a Straight Line Trend by the method of Least Squares for the following time series and estimate the trend for the year 2007. (8m)

Year	2000	2001	2002	2003	2004	2005	2006
No of Workers	45	49	51	50	52	53	50

Q4B) Calculate Cost of Living Index Numbers by Family Budget Method. (7m)

Group	Food	Rent	Clothing	Fuel	Others
Price 2010	100	25	80	40	50
Price 2015	110	25	100	60	55
Expenses	40%	15%	20%	10%	15%

(OR)

Q4P) Determine Seasonal Indices for the following. (7m)

Year	Exports (in thousands of Rupees)			
	Jan - Mar	Apr - June	July - Sep	Oct - Dec
2003	107	120	114	113
2004	109	123	115	112
2005	110	122	113	114
2006	108	125	117	113

Q4Q) Calculate Chain Base Index Numbers for the following. (8m)

Commodity	2002	2003	2004	2005
A	12	18	25	30
B	15	22	27	35
C	25	32	38	40

Q5A) For the following probability distribution, obtain E(X) and V(X). (8m)

X	-2	-1	0	1	2	3
P(x)	0.1	0.2	0.2	0.3	0.15	0.05

Q5B) A manager has to make a choice from 3 available courses of action A₁, A₂, and A₃. There are two possible states of nature S₁ and S₂ with probabilities of occurrence as 0.7 and 0.3 respectively. For state S₁, the pay offs for three actions are Rs. 25,000/-, Rs. 35,000/- and Rs. 20,000/- respectively. While for state S₂, the pay offs are Rs. 45,000/- Rs. 50,000/- and Rs. 35,000/- respectively. Represent the problem with the help of a Decision Tree and suggest the most preferred decision and corresponding expected value. (7m)

(OR)

Q5P) Write Short Notes on any three out of five.

(15m)

1. Components of Decision Making
2. Components of Time Series
3. Whole Sale Price Index Numbers
4. Relation between Correlation Co-efficient and Regression Co-efficients
5. Scatter Diagram
