

B.B.A. (Part—I) Examination
BUSINESS STATISTICS

Time : Three Hours]

[Maximum Marks : 80

Note :—(1) Attempt all **five** questions.

(2) All questions carry equal marks.

1. (A) Calculate Mean from the following information :

No. of employees	:	10—19	20—29	30—39	40—49	50—59
No. of Farmers	:	6	11	14	6	3

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(B) In moderately symmetrical distribution, determine the value of 'Mean', if Mode = 592 and Median = 488. 4

(C) Present the following data of the percentage marks of 60 students in the form of frequency table with 10 classes of equal width, one class being 40—49 :

41	17	33	63	54	92	60	58	70	6	67	82
33	44	57	49	34	73	54	63	36	52	32	75
60	33	9	79	28	30	42	93	43	80	3	32
57	67	24	64	63	11	35	82	10	3	00	41
60	32	72	53	92	88	62	55	60	33	40	57

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(D) Calculate Median from the following data :

$$L_1 = 96, L_2 = 100, m = 56, c = 50, f_1 = 31.$$

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OR

(E) State any four objectives of classification.

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(F) Calculate arithmetic for the following distribution :

Income	No. of Persons
0—1	13
1—2	90
2—3	81
3—5	117
5—10	66
10—25	27
25—50	6
50—100	2
100—1000	2

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(G) Calculate Mode :

Mid point : 5 15 25 35 45

Frequency : 3 4 7 5 1

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(H) Find out the Median :

Marks got—20, 24, 28, 34, 36, 40, 42, 60.

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2. (A) From the following data, calculate Quartile Deviation and its co-efficient :

Size : 10—20 20—30 30—40 40—50 50—60 60—70 70—80

Frequency : 2 18 30 45 35 20 10

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OR

(B) From the data given below, state which series is more variable ?

Class	Series A	Series B	
10—12	15	12	
12—14	22	38	
14—16	28	20	
16—18	40	15	
18—20	13	12	
20—22	2	3	16

3. (A) There are 2 papers of economics at a certain examination, Paper I and Paper II. The probability that a candidate pass in Paper I is 40 % and that in Paper II is 50 %. What is the probability that a candidate passed only in any one of the two Papers ? 4

(B) Two coins are tossed simultaneously. Find out the probability of getting :

(i) Two Heads

(ii) Only one Head. 4

(C) What are the limitations of Probability ? 4

(D) A single letter is selected at random from the word 'PROBABILITY'. What is the probability that it is a vowel ? 4

OR

(E) A bag contains 5 white, 4 black, 3 yellow and 4 red balls. What is the probability of getting a black or red ball at random in a single draw of one ? 4

(F) Explain in brief about the probability. 4

(G) Three coins are tossed simultaneously. Find out the probability that :

(i) At least one is Head.

(ii) Atmost two are tails. 4

(H) There are 100 tickets numbered from 1 to 100. They are well shuffled and ticket is drawn at random. Find the probability that the number on the ticket drawn is a square of an integer. 4

4. (A) From the following data, find out if there is any relationship between density of population and death rate :

District	Area (in sq.mtr)	Population	No. of Deaths
A	120	24,000	288
B	150	75,000	1125
C	80	48,000	768
D	50	40,000	720
E	250	50,000	650

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OR

- (B) Given the following data about the Sales and Advertising Expenditure of a Company :

(Rs. in Crore)

Particulars	Sales	Advertising Expenditure
Average	50	10
S.D.	10	2

Co-efficient of Co-relation = 0.9.

- (i) Obtain the two regression equations.
(ii) Estimate the likely sales for a proposed advertising expenditure of 13.5 crores.
(iii) What would be the advertising budget if the company wants to achieve a sales target of 70 crores ?
5. (A) State the importance of time series.
- (B) Find out the value of $\Sigma p_1 q_0$:

Commodities	p_1	q_0
Jowar	4.5	80
Rice	11.7	75
Wheat	8.2	85

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(C) Find out Index numbers by using Paasche's Formula :

Articles	Quantity		Price	
	2013	2015	2013	2015
A	60	75	225	150
B	50	60	250	200
C	35	40	280	250
D	25	30	360	300

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(D) Fit a straight line trend equation, by the method of least squares :

$$N = 10, \Sigma y = 2020, \Sigma yx = 600, \Sigma x^2 = 150.$$

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OR

From the following data, calculate Price Index Number for 2015 with 2005 as a base year by :

(E) Paasche's method

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(F) Fisher's Ideal method :

Commodities	2005		2015	
	Price	Qty.	Price	Qty.
E	10	16	20	12
F	25	20	30	10
G	20	30	25	30
H	10	40	10	50

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(G) Explain the utility of index number.

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(H) Write the process of setting a straight line equation in time series with illustration.

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