AU–1512

B.B.A. (Part—I) Examination

BUSINESS STATISTICS

Time : Three Hours]   [Maximum Marks : 80

N.B. :— (1) Attempt all **five** questions.

      (2) All questions carry equal marks.

1. (a) Find the value of the Median from the following data :

    10, 18, 9, 17, 15, 24, 30, 11.   4

  (b) Calculate Harmonic Mean :

Output	10—20	20—30	30—40	40—50	50—60
No. of Workers	30	75	70	135	220

                                                                           4

  (c) Calculate Arithmetic Mean :

Temp. 'C'	No. of days
–40 to –30	10
–30 to –20	28
–20 to –10	30
–10 to 0	42
0 to 10	65
10 to 20	180
20 to 30	10

                                                                            4

          1   (Contd.)

(d) Calculate the value of Mode :

Marks	No. of Students
Below—10	3
Below—20	8
Below—30	17
Below—40	20
Below—50	22

4

OR

(e) Calculate Median :

Size	Frequency
10—15	10
16—17.5	15
17.5—20	17
20—30	25
30—35	28
35—40	30
40 and onward	40

4

(f) Calculate Mode :

Size of Items	Number of Items
Below—50	97
Below—45	95
Below—40	90
Below—35	80

Size of Items	Number of Items
Below—30	60
Below—25	30
Below—20	12
Below—15	4

4

(g) Calculate the Arithmetic Average :

Family	A	B	C	D	E	F	G	H	I	J
Income	30	70	10	75	500	8	42	250	40	36

4

(h) In moderately symmetrical distribution, determine the value of 'Mean' if Mode = 43.00 and Median = 55.00. 4

2. Nitin Ltd. is actively considering the following two mutually exclusive projects for adoption.

Year	Project 'X' Cost Profit (Rs. in Lakhs)	Project 'Y' Cash Profit (Rs. in Lakhs)
1	10	5
2	5	25
3	20	45
4	40	30
5	60	30

Which is the most risky project ? 16

OR

Calculate the Coefficient of Variation from the following data :

Marks	No. of Students
Below—20	8
Below—40	20
Below—60	50
Below—80	70
Below—100	80

16

VOX—35230 3 (Contd.)

3. Three ships A, B and C sail from England to India. Odds in favour of their arriving safely are 2:5, 3:7 and 6:11. Find the probability that they all arrive safely. 16

OR

A bag contains 5 black and 7 white balls. A ball is drawn out of it and replaced in the bag. Then a ball is drawn again. What is the probability that :

(i) Both the balls drawn were black

(ii) Both were white

(iii) The first ball was white and the second black

(iv) The first ball was black and the second white ? 16

4. (a) Calculate the co-efficient of correlation between X and Y :

$\Sigma xy = 42075$, $n = 450$, $\delta x = 12$, $\delta y = 16$. 4

(b) $N = 10$, probable error is .021. Calculate the value of co-efficient of correlation. 4

(c) Calculate the regression equation of Y on X :

$\overline{X} = 20, \overline{Y} = 15, \delta x = 4, \delta y = 3, r = +0.7$. 4

(d) If standard deviation of 'X' is 1.50 and standard deviation of 'Y' is 2.00 and $r = 0.6$ find bxy. 4

OR

(e) Calculate the coefficient of correlation between 'X' and 'Y' series.

$\Sigma Fdxdy = 38$, $\Sigma Fdx = 20$, $\Sigma Fdx^2 = 90$, $n = 100$.

$\Sigma Fdy = -100$, $\Sigma Fdy^2 = 204$. 4

(f) The co-efficient of correlation is 0.71 and the probable error is 0.092. What will be the value of N ? 4

(g) Calculate the regression equation of X on Y :

$r = .60, \delta x = 1.50, \delta y = 2.00, \overline{X} = 10, \overline{Y} = 20.$ 4

(h) If $Y = .525x + 4.5$. Find the most likely value of y when $x = 24$. 4

5. (a) The index numbers are given below. You are required to convert chain base index number to Fixed base index numbers :

Year	:	2005	2006	2007	2008	2009
Index No.	:	120	150	100	80	110

4

(b) Calculate Index Numbers by Fisher's Ideal method :

$\Sigma p_0 q_0 = 1360, \Sigma p_1 q_1 = 1880, \Sigma p_1 q_0 = 1900, \Sigma p_0 q_1 = 1344.$ 4

(c) Fin an equation of straight line trend by the method of least squares :

$n = 7, \Sigma y = 630, \Sigma xy = 56, \Sigma x^2 = 28.$ 4

(d) From the following data, determine three yearly moving average :

Year	:	2000	2001	2002	2003	2004
Production	:	50	60	65	45	55

4

OR

(e) From the following data calculate Fixed base index numbers :

Year	:	2004	2005	2006	2007	2008	2009
Price	:	150	200	300	250	275	350

4

(f) Calculate Index Number by Laspeyre's method

$\Sigma p_0 q_0 = 3320, \Sigma p_0 q_1 = 2940, \Sigma p_1 q_0 = 4140, \Sigma p_1 q_1 = 3580.$ 4

(g) Fit an equation of straight line trend by the method of least squares :

$n = 5, \Sigma y = 290, \Sigma xy = -34, \Sigma x^2 = 10.$ 4

(h) Explain the meaning of time series. 4