FY BBI - 130

[Time: $2\frac{1}{2}$ Hours]   [Marks:75]

N.B: 1.   Figures to the right indicate marks
        2.   **Graphs to be provided wherever needed.**

Q.1 (A) Choose the correct answers: (any 8)   8

1) If A and $\overline{A}$ are complementary events then P $(\overline{A})$= ----------
   (a) 1+p (A)   (b) - P (A)   (c) 1-P (A)

2   We use regret table for calculating ----------
   (a) EOL   (b) EMV   (c) Maximax

3   The formula for Laspeyre's index number is L_{01} = ----------x 100
   (a) $\frac{\sum p_1 q_0}{\sum p_1 q_0}$ (b) $\frac{\sum p_1 q_0}{\sum p_0 q_0}$ (c) $\frac{\sum p_1 q_1}{\sum p_0 q_1}$

4   Cost of Living Index numbers is also known as ----------Index Number
   (a) Value   (b) Consumer's Price (c) Wholesale

5   The difference between the upper limit and lower limit of a class is called ---------- of class
   (a) Class mark (b) Class width (c) none of these

6   Mode is ---------- value
   (a) Least frequent (b) Middle most   (c) Most frequent

7   If variance of a data is 4, then its standard deviation is ----------
   (a) 2   (b) 4   (c) 5

8   The correlation coefficient is unaffected by change of ----------
   (a) origin   (b) Scale   (c) origin & scale

9   Coefficient of correlation lies between ----------
   (a) -1 and +1   (b) -2 and +2   (c) 0 and 1.

10 Range is determined only by ---------- points in a data set.
   (a) Two (b) Three (c) One

Q.1 (B) State whether True or False :   (any 7)   7
1   Mean deviation is a relative measure of dispersion.
2   Variance is always positive.
3   Probability of an event cannot be zero
4   The algebraic sum of the deviation of a frequency distribution from its mean is always zero.
5   There can be more than one modal value in a frequency distribution.
6   Frequency density of a class interval = $\frac{classs\ frequency}{width\ of\ class}$
7   Diagrams & graphs are pictorial representation of tabular data which is easily understood by a common man
8   Index number for the base year is always 100.
9   If an insurance premium is not paid within the grace period, the policy lapses
10 The tabulated rate of annual premium is calculated per Rs. 10,000.

Q.2 (A) Calculate Quartile deviation.   7

Weekly wages:	0 - 20	20 - 30	30 - 40	40 - 50	50 - 100
No. of Workers:	40	39	39	30	45

(B) Calculate the standard deviation of the height of 8 children.   8
Height in cm - 90, 94, 95, 97, 100, 103, 105, 108

OR

(C) Calculate co-efficient of correlation between Index of demand and Index of price.   7

Index of demand	101	108	105	107	109
Index of price	117	98	102	118	110

(D) Calculate co-efficient of rank correlation between marks in Mathematics and marks in English: 8

Marks in English	40	45	65	60	50	55
Marks in Mathematics	90	70	80	50	60	75

Q.3   Solve:

(A) A bag contains 7 white balls, 5 black balls and 4 red balls. If two balls are drawn at random from the bag,   7
find the probability that (i) both the balls are white; (ii) one is black and the other is red.

(B) In a Pizza hut the following distribution is found for the daily demand of pizza find the expected daily   8
demand & also the variance.

No.of Pizza	5	6	7	8	9	10
Probability	0.07	0.2	0.3	0.3	0.07	0.06

OR

(C) Find index number using weighted average of relative method: 7

Commodities	Price		Quantity Consumed 1980
	1980	1990	
A	3	5	10
B	10	15	2
C	2	4	5

(D) Calculate Laspeyre's and Paasche's index number from the following data for the year 1995 with base   8
1990.

Commodity	Price		Quantity	
	1990	1995	1990	1995
A	10	12	20	22
B	13	13	23	24
C	16	18	20	18
D	20	18	5	6
E	18	20	7	8

Q.4   Solve:

(A) Draw less than cumulative frequency curve and find the median for the following data: 7

Age in year	10-14	14-18	18-22	22-26	26-30
No.of Insurance policy holder	10	13	15	30	20

(B) Draw a frequency Polygon and frequency curve for the following distribution: 8

Class-Interval	100-150	150-200	200-250	250-300	300-350	350-400
Frequency	15	22	30	32	20	10

OR

(C) Calculate mode of the following set of data: 7

Class-interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	24	42	56	66	108	130	154

(D) For a person 50 years of age. The tabulated annual premium for an endowment policy for 20 year is   8
Rs.50.70 per thousand. A person wants to buy a policy with sum assured Rs. 3,00,000 and pay premium
every month. The company adds extra 5% on the tabulated premium for the monthly payment but offer a
reduction of Rs.2 per thousand for a policy with sum assured more than Rs.1,00,000, find the net monthly
premium that the person has to pay.

Q.5 (A) What is Quartile Deviation? State its merits & demerits   7
(B) Explain types of correlation.   8

OR

Q.5   Write short notes on :   (any 3)   15
(A) Merits of Arithmetic mean
(B) Different types of ogives.
(C) Define
    i)Probability of an event
    ii)Complementary Events
(D) Index Numbers of Agricultural Production
(E) Paid up Value.