Code : YCD 151012-FYBBI-BMB-SEM II - 60 Marks - 2 Hrs - (3 X 140)

NOTE: 1) All questions are compulsory and carry equal marks.
2) Figures to right indicate marks of each sub question
3) Use of simple calculator is allowed

Q.1.

a) Write note on Properties of Regression equations (5)

b) Find the Coefficient of Correlation (5)

Classwork	12	14	23	18	10	19
Annual Exam	68	78	85	75	70	74

c) Find the Coefficient of Rank Correlation (5)

R1	1	2	3	4	5	6	7	8
R2	5	4	2	1	7	8	6	3

OR

Q.1.

p) Write a note on Scatter Diagram. (5)

q) Find the Regression equation of Y on X when (5)

$\sum X = 420, \sum Y = 1922, \sum XY = 84541, X2 = 18228, n = 10$

r) Given the following Regression equation find X, Y and r. (5)

$X+2Y-5=0, 2X+3Y-8=0$

Q.2.

a) Write Short Note on: Uses of Vital Statistics (5)

b) Fill in the blanks in the following portion taken from a life table. (5)

x	l_x	d_x	p_x	q_x	L_x	T_x	e_x
8	90,000	500	-	-	-	48,50,000	-
9	-	400	-	-	-	-	-

c) Calculate the Crude Birth Rate, the General Fertility Rate, the Total Fertility Rate (5)

Age-Group	Female Population	Number of live births
15-19	16,000	250
20-24	16,400	2,250
25-29	15,800	1,894
30-34	15,200	1,321
35-39	14,800	919
40-44	15,000	278
46-49	14,500	147

The total population of the City is 2,89,321. Female births were 462 out of 1,000.

P.T.O.

Q.2.

p) Write Short Note on: Methods of collecting Vital Statistics

q) Find the Crude Death Rate and Age-specific Death Rates for Each age segment (5)

Age-Group (Years)	Population	Number of Deaths
Under 10	10,000	220
10-30	15,000	105
30-50	20,000	240
Above 50	15,000	525

(5)

r) Calculate the Gross Reproduction Rate and the Net Reproduction Rate (per woman) (5)

Age-Group	Number of children born to 1000 women passing through the age group	Mortality Rate per 1000
15-19	140	110
20-24	1600	180
25-29	2000	160
30-34	790	210
35-39	550	230
40-44	190	220
46-49	110	250

Q.3.

a) If S is a sample space and A, B are two events in S, then (AUB)=P(A) + P(B) – P(AnB)(5)

b) Find Mean and Variance of x given at following probability distribution (5)

X	2	4	6	8	10
P	0.3	0.2	0.2	0.2	0.1

c) Mr. Manohar has paid annual premium for 4 years at a rate of Rs. 45 per thousand on his endowment policy of 25 years. If his paid up value is Rs. 54, 000 find the sum insured. (5)

OR

Q.3.

p) Write the properties of Normal Curve (5)

q) If the Probability of A winning a race is 1/6 and the probability of B winning it is 1/8, find the probability that neither should win. (5)

r) A policyholder pays Rs. 259.15 half-yearly for his life insurance. Find the sum assured if the tabulated rate of annual premium is Rs. 32.50 per thousand and an extra Rs. 4 per thousand is added to cover the additional risk involved due to the hazardous occupation of the policyholder. (5)

a) Write a note on Cost of Living Index Number? (5)

b) Find Fisher's Index Number (5)

Commodity	1996		1997	
	Price	Quantity	Price	Quantity
A	2	74	3	82
B	5	125	4	140
C	7	40	6	52

c) Calculate chain base index numbers.

Commodity	Price per unit in Rs.				Weights
	1970 = P0	1971 = P1	1972 = P2	1973 = P3	
A	10	12	13	15	25
B	15	18	20	21	40
C	12	13	15	16	35

OR

Q.4.

p) Write a note on Index Number in India.

q) Find Marshall-Edgeworth, DorbishBowley index number

Commodity	Price in Rs.		Quantity in Kgs	
	1990	1995	1990	1995
A	10	12	20	22
B	13	13	23	24
C	16	18	20	18
D	20	18	05	06
E	18	20	07	08

r) Find Kelly's Index Number from the following

Commodities	Price in Rs.		Quantity
	1995	1999	
Wheat	14	20	15
Rice	20	25	10
Gram	30	35	5