

PAPER - II : MODEL PAPER - 05

(BASED ON MARCH 2018)

MATHEMATICS & STATISTICS

COMMERCE

TIME : 1 HR 30 MIN

MARKS : 40

NOTES :

1. All questions are compulsory
2. Answers to section I and section II must be written in separate ans. Books
3. Graph paper is compulsory for L.P.P.
4. Logarithm table will be provided on demand
5. Figures to the right indicate full marks
6. Answers to every question must be written on new page

ALL THE BEST

Q4. Attempt any six of the following

(12)

01. a person insures his shop valued ₹ 1 lakh for 80% of its value . He pays a premium of ₹ 4,000 . Calculate the rate of premium.

02. If for the following data CDR = 55 , find the value of x

Age Group	Population In '000	No. of deaths
0 – 25	25	1250
25 – 40	x	1000
40 – 70	28	1570
70 & above	15	1680

03. if $\sum d_i^2 = 42$, $n = 8$, find the rank correlation coefficient where d_i is the difference between the ranks of the i^{th} values

04. if $r(x,y) = -0.8$, $\Sigma(x - \bar{x})(y - \bar{y}) = -120$, $\sigma_x = 3$, $\sigma_y^2 = 25$. Find number of pairs of observation

05. The regression equation of Y on X is $y = \frac{2}{9}x$ and
regression equation of X on Y is $x = \frac{y}{2} + \frac{7}{6}$

Find a) correlation coefficient between X and Y b) σ_y^2 if $\sigma_x^2 = 4$

06. Identify regression lines $2x - y - 15 = 0$ & $3x - 4y + 25 = 0$

07. if a random variable X follows Poisson Distribution such that

$$P(X = 1) = 2P(X = 2),$$

find the mean and the variance of the distribution

08. three fair coins are tossed simultaneously. If X denotes the number of heads, find the probability distribution of X

Q5. (A) Attempt any TWO of the following

(06)

01. A, B and C started a business by investing capitals in the ratio 4 : 5 : 6. After 3 months B removed all his capitals and after 6 months C removed all his capitals from the business. At the end of the year A got ₹ 48,000 as profit. Find share of B and C in the profit

02.

	I	II	III	IV
A	2	10	9	7
B	13	2	12	2
C	3	4	6	1
D	4	15	4	9

SOLVE the MINIMAL ASSIGNMENT PROBLEM

03. given : $l_{26} = 9046$; $l_{27} = 8898$ & $T_{26} = 36,000$. Find L_{26} ; T_{27} and e_{26}^o

(B) Attempt any TWO of the following

(08)

01. A bill of ₹ 7,300 drawn on 7th June 2007 was encashed for ₹ 7,108 on 22nd October 2007. If the rate of interest was 12% p.a. Find the period of the bill

02. Find Karl Pearson's correlation coefficient for the following data

X :	3	2	1	5	4
Y :	8	4	10	2	6

03. Solve the following using Graphical method

Minimize $Z = 2x + y$

Subject to : $3x + y \geq 30$, $4x + 3y \geq 60$, $x + 2y \leq 40$, $x, y \geq 0$

Q6. (A) Attempt any TWO of the following

(06)

01. for an experimental project, a Company collected data of 7 persons from Human resource development department referring to years of service and their monthly incomes

Years of service : 11 7 9 5 8 6 10

Income (in 000's) : 10 8 6 5 9 7 11

Find the regression equation of income on the years of service

02. Sketch the graph on the real number line which shows solution set for the following inequation : $-4 \leq -(5x + 3) < 8$

03. x : 0 1 2 3 4 5
 l_x : 4000 3000 1000 200 40 0 . Construct the life table

(B) Attempt any TWO of the following

(08)

01. Find the probability of guessing correctly at most three of the seven answers in a True or False objective test

02. machinery is expected to cost 25% more over its present cost of ₹ 6,96,000 after 20 years . The scrap value of the machinery will realize ₹ 1,50,000 . What sum should be set aside at the end of each year at 5% compound interest for 20 years to replace the machinery ($1.05^{20} = 2.655$)

03

		CITY			
		A	B	C	D
BRANCH MANAGER	P	11	11	9	9
	Q	13	16	11	10
	R	12	17	13	8
	S	16	14	16	12

MONTHLY BUSINESS (IN LACS)

Which manager should be appointed at which city so as to get maximum total monthly business .

DO NOT STOP
GET READY FOR NEXT