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SEAT No. :

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F.Y. M.C.A. (Management)

BST 504 MJ : BUSINESS STATISTICS

(2025 Pattern) (Semester - I)

Time : 2½ Hours] *[Max. Marks : 45*

Instructions to the candidates:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*

Q1) a) Solve the following (Any One) **[4]**

i) Explain classification of Statistics with example.

ii) Explain different methods of data presentation.

b) Explain the following (Any One) **[5]**

i) The following table shows the distribution of weights (in kg) of 60 students in a college:

Weight	40-45	45-50	50-55	55-60	60-65	65-70
No. of Students	6	10	14	16	9	5

Draw a Histogram for above and identify modal class.

ii) The following table shows the annual budget allocation of a company:

Department	Production	Marketing	Research	Human Research	Administration
Expenditure (In Lakhs)	45	30	20	15	10

Construct a pie chart for the above data

Q2) a) Solve the following (Any One) **[5]**

i) The following table shows the monthly income (in ₹ thousands) of 60 families:

Income (₹'000)	10-20	20-30	30-40	40-50	50-60	60-70
Number of Families	6	9	14	18	8	5

Calculate the mean and median income of the distribution.

ii) Calculate Mean & mode from following.

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	12	4	45	20	12	3

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b) Solve the following (Any One) **[4]**

i) Find

1) Combined Mean

2) Combined Standard Deviation

Particulars	Departmnent A	Department B
No. of employees	40	55
Average Salary	52	46
S.D.	8	11

ii) From data given below state which series is more consistent.

Variable	10-20	20-30	30-40	40-50	50-60	60-70
Series A	20	18	32	40	22	18
Series B	13	22	40	32	18	10

Q3) a) Solve the following (Any one) **[4]**

i) A bag contains 2 yellow marbles, 3 green marbles, and 5 red marbles. If one marble is drawn at random, what is the probability that it is either yellow or green?

ii) In a deck of cards, half of the cards are red (hearts and diamonds), and the other half are black (spades and clubs). If a card is drawn at random, what is the probability that it is red?

b) Solve the following (Any one) **[5]**

i) A factory produces two types of parts, Type A and Type B. 70% of the parts produced are Type A, and 30% are Type B. 5% of Type A parts are defective, and 10% of Type B parts are defective. A randomly selected part is found to be defective. What is the probability that it is a Type A part?

ii) Two machines, Machine A and Machine B, produce widgets. Machine A produces 60% of the widgets, and Machine B produces 40%. 5% of the widgets from Machine A are defective, while 10% of the widgets from Machine B are defective. A widget is chosen at random and found to be defective. What is the probability that it was produced by Machine A?

Q4) a) Solve the folloing (Any one) **[7]**

i) Calculate the correlation coefficient between the heights of fathers in inches (X) and their sons (Y) .

X	65	66	57	67	68	69	70	72
Y	67	56	65	68	72	72	69	71

ii) Find regression equations of following two series what is most likely value of X when Y=20 and most likely value of Y when X=22.

X	35	25	29	31	27	24	33	36
Y	23	27	26	21	24	20	29	30

b) Explain the following (Any one) **[2]**

i) State the properties of correlation coefficient.

ii) Explain probable error in correlation.

Q5) a) Solve the folloing (Any one) **[7]**

i) Calculate the Spearman's Rank Correlation for the following data.

Mathematics	14	15	17	12	16	11	18	9	10
Accountancy	4	12	8	10	2	5	9	3	7

ii) Calculate three-yearly moving averages of number of students studying in a higher secondary school in a particular village from the following data.

Year	1995	1996	1997	1998	1999	200	2001	2002	2003	2004
No. of Students	332	317	357	392	402	405	410	427	435	438

b) Solve the following. (Any One) **[2]**

i) Differentiate between seasonal and cyclical variations.

ii) What are the objectives of Time Series Analysis?

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