

- N.B. :1) Attempt any ONE question from Section - I.
 2) Attempt any ONE question from Section - II.
 3) Figures to the right indicate marks.

Section-I

- Q.1 a) Out of the total number of 10000 candidates appeared for a test by U.P.S.C. 6854 were males 3200 were graduates and others undergraduates. The number of candidates with some experience was 2640 of whom 1860 were males. The number of male graduates was 2050. The number of graduates with experience was 1125 which included 375 females. Tabulates the information.

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- b) Draw a Histogram for the following data :

No. of. days absent	0-10	10-20	20-30	30-35	35-50
No . of students	30	70	50	30	60

Hence find mode by graphical method.

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- c) Find mean, median and mode for the following data -

Class -	10-30	30-50	50-70	70-90	90-110	110-130
Frequency	4	10	14	12	8	6

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- Q.2 a) The following figures are for income (x) and percentage expenditure on food (y) in 25 families. Construct a bivariate frequency table classifying x into intervals 200-300, 300-400 and so on, and y into 10-15, 15-20 & so on write down the marginal distribution of x and y and the conditional distribution of x when y lies between 15 and 20.

x	y	x	y	x	y	x	y	x	y
550	12	225	25	680	13	202	29	689	11
623	14	310	26	300	25	255	27	523	12
310	18	610	20	425	16	492	18	317	18
420	16	512	18	555	5	587	21	384	17
600	16	690	12	325	23	643	19	400	19

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- b) Below is given the frequency distribution of weights of a group of 60 students in a class.

Weight	30-34	35-39	40-44	45-49	50-54	50-59	60-64
No. of students	3	5	12	18	14	6	2

Find 1) Interquartile range.

2) Quartile deviation.

3) Coefficient of quartile deviation.

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- c) From an analysis of monthly wages paid to workers in two organisations C and D, the following results were obtained -

	C	D
No. of workers	550	600
Avg. monthly wages	60	48.5
variance	100	144

Obtain the average monthly wages and the variability in individual wages of all the workers in the two organisations taken together.

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- d) If $\sum f = 1000$, $\sum fx = 420$, $\sum fx^2 = 1320$,

$$\sum fx^3 = 3320 \quad \sum fx^4 = 12010$$

find $\mu_2, \mu_3, \mu_4, \beta_1, \beta_2, \gamma_1$.

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Section- II

- Q.3 a) Calculate Karl Pearson's Coefficient of correlation from the following data :

x :	12	9	8	10	11	13	7
y :	14	8	6	9	11	12	3

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- b) For a bivariate data the mean value of x is 53.2 and that of y is 27.9. The regression coefficient of y on x is - 1.5 and that of x on y is -0.2. Find the most probable value of y when x = 60 and that of x when y = 30.

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- c) Find the remaining class frequencies for the following :

$$(ABC) = 37 \quad (AB\gamma) = 23 \quad (A\beta C) = 26$$

$$(A\beta\gamma) = 14 \quad (\alpha BC) = 114 \quad (\alpha B\gamma) = 96$$

- Q.4 a) Construct index numbers of price from the following data by applying
 1) Laspeyre's method 2) Paasche's method 3) Bowley's method

Commodities	Base year		Current year		
	Price	Quantity	Price	Quantity	
A	2	3	4	6	
B	5	10	6	5	
C	4	14	5	10	
D	2	19	2	13	5

- b) Fit a parabola of the form $y = a + bx + cx^2$ to the following data-

x:	1	2	3	4	5	
y:	2	1	6	15	35	5

- c) Calculate Spearman's rank correlation coefficient for the following data.

x:	35	37	38	42	44	46	51	54	55	56	
y:	40	32	39	40	41	31	50	32	46	55	5
