Post-Graduate Course

Term End Examination – 2006   Part-I

M. Com.

Basic Statistical Concept and Tools

Paper - VII

Time : Two Hours   Full Marks : 50

(Weightage of Marks : 80%)

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

Module I

25 Marks

Answer *any two* questions of the following.

1. (a) Compute standard deviation from the following data :   7

Daily wages (Rs.)	No. of Workers
100 - 120	16
120 - 140	22
140 - 160	36
160 - 180	18
180 - 200	8

(b) For a set of 250 observations on a certain variable x_1 the mean and standard deviation are 65·7 and 4·4 respectively. For another set of 150 observations on variable x_2 the mean and standard deviation are 52·8 and 3·7 respectively. Find standard deviation of all 400 observations.   5½

P.T.O.

2. (a) Calculate quartile deviation from the following data :   7

Life (in hrs.)	No. of bulbs
0 - 100	12
100 - 200	37
200 - 300	42
300 - 400	23
400 - 500	18
500 - 600	14
600 - 700	7

(b) Given the following informations :

$f_A = 490$, $f_{AB} = 294$, and $f_\alpha = 570$, and $f_{\alpha\beta} = 380$. Determine whether attributes A and B are positively associated, negatively associated or independent.   5½

3. (a) What is scatter diagram ? Indicate by means of suitable scatter diagrams different values of correlation coefficient that may exist between the variables in bivariate data.   1+2½

(b) Two regression lines are x + 2y = 5 and 2x + 3y = 8, and $S_x^2 = 12$. Determine the values of $\overline{X}$, $\overline{Y}$, r_{xy} and S_y^2.   9

4. (a) The ranking of 8 individuals at the start and on the finish of a course of training are as follows :

Individual	:	A	B	C	D	E	F	G	H
Rank before	:	5	2	8	1	4	6	3	7
Rank after	:	4	5	7	3	2	8	1	6

Compute rank correlation and comment.   4

(b) Using suitable interpolation formula find f(22) from the following table :   8½

x :	5	10	15	20	25
f(x) :	1·0	1·6	3·8	8·2	15·4

Module II

25 marks

Answer *any two* questions of the following.

5. (a) What is a cost of living index number ? What does it measure ? How is it constructed ?   7½

   (b) From the following figures determine the relative importance for the food group, given that the cost of living index number for 2005 with 2000 as base year is 225.

Group	Food	Clothing	Light and Fuel	House Rent	Misc.
% increase :	65	90	20	70	120
weight :	W	12	18	8	23

   5

6. Fit a quadratic trend equation of the form $T_t = a + bt + ct^2$ from the following data :

Year	:	2001	2002	2003	2004	2005
Sales (1000 units) :		25	28	33	39	46

   Hence compute expected sales for the year 2006.   12½

7. The following are the number of defective transistors in 10 lots of 100 transistors each.

   17, 6, 10, 8, 11, 14, 7, 17, 4, 15

   Draw suitable contral chart and check whether the manufacturing process is under control or not.   12½

8. Write short notes *any four* from the following : $3\frac{1}{4} \times 4 = 12½$

   (a) Coefficient of variation.   (b) Regression coefficient.

   (c) Rank correlation.   (d) Extrapolation.

   (e) Seasonal component.   (f) Error of Index Numbers.

   (g) Rational subgroup.   (h) Harmonic mean.

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