

[N.B. – Write down the correct option/answer on your script.]

Candidates are asked not to leave any mark or spot on the question paper.

Short Questions

1. Expand  $\sum_{i=1}^n (ax_i - b)$ . 3

2. What is change of origin? Show an example. 2

3.  $x_1 = 2, x_2 = -3, x_3 = 7, x_4 = 12$ .  
Find the values of the following:  $2 \times 1.5 = 3$

i)  $\sum_{i=1}^3 x_i$  ii)  $\sum_{i=1}^4 x_i^2$

4. Write down the scales of measurement of the following variables.  $4 \times 0.5 = 2$   
Gender, Religion, Temperature, Income group (Lower class, Low, Middle, High)

Creative Questions

5. A set of values and their respective frequencies are given below:

$x_i$	2	4	8
$f_i$	5	4	6

(a) Is  $X_i$  discrete? 1

(b) Find  $\sum_{i=1}^2 f_i x_i$  2

(c) Estimate  $\sum_{i=1}^2 f_i x_i^2$  3

(d) Are  $\sum_{i=1}^2 f_i^2 x_i^2$  and  $(\sum_{i=1}^2 f_i x_i)^2$  equal? Verify. 4

6.  $\sum_{i=1}^m \sum_{j=1}^n (x_i + y_j)$  is a notation making use of double summation.

(a) What is  $\sum_{i=1}^n (a)$ , where a is a constant? 1

(b) Why are two suffixes (i and j) used here? 2

(c) Reduce the expression to single summations. 3

(d) Evaluate the expression if  $X = 7, 10, 23$  and  $Y = 10, 15, 16$  4

An approximate answer to the right problem is worth a good deal more than an exact answer to an approximate problem. – John Tukey.