

Name

SECOND YEAR B.Sc. DEGREE EXAMINATION, APRIL/MAY 2005**Part III—Statistics (Subsidiary) to Geography Main****Paper III—PRACTICAL**

Time : Three Hours

Maximum : 50 Marks

*Each question carries 10 marks.**Half the paper carries full marks.*

1. Draw histogram and frequency polygon for the following data. x = monthly income ; f = number of workers :—

x :	0—500	500—1000	1000—2000	2000—4000	4000—6000	6000—10000
f :	40	160	310	180	210	100

2. The following are the prices of a particular commodity in six months at two regions :—

Region A :	Rs.	30	32	29	32	33	35
Region B :	Rs.	28	22	20	30	25	33

(a) Which region would costs more ?

(b) Compare the consistency of the prices in two regions.

3. Calculate moment measures of skewness and Kurtosis based on the following data and interpret the results :

x :	6	12	18	24	30	36	42	48	54
f :	29	57	92	134	216	287	341	350	94

4. A continuous random variable x has p.d.f.

$$f(x) = 6x(1-x) \quad 0 \leq x \leq 1$$

$$= 0 \quad \text{elsewhere.}$$

Find the distribution function, mean and variance. Also draw the graph of $f(x)$.

5. Fit a curve of the form $y = ax^b$ to the following data :—

x :	1	2	3	4	5	6
y :	1.97	3.15	4.18	5.10	6.8	7.5

Estimate the value of y when $x = 7$ and $x = 8$.

6. Fit a binomial distribution to the following data on the number of seeds germinating from 10 seeds for 80 sets of seeds. Also test the goodness of fit.

x :	0	1	2	3	4	5	6	7	8	9	10
f :	6	20	25	10	6	6	3	4	0	0	0

7. The following table gives the number of mistakes/page observed in a book which follows Poisson distribution with parameter λ :—

No. of mistakes	:	0	1	2	3	4
No. of pages	:	111	70	15	4	0

Find an unbiased consistent estimate of its parameter λ . Estimate its variance.

8. An insurance agent has claimed that the average age of policy holders who insure through him is less than the average for all agents, which is 30.5 years.

A random sample of 100 policy holders who had insured through him gave the following age distribution :—

<i>Age as on last birthday</i>	<i>No. of persons</i>
16—20	12
21—25	22
26—30	20
31—35	30
36—40	16

9. 10 rabbits were given a high protein diet and another 7 rabbits were given a low protein diet. The gain in weight in grams observed in the two sets are given below :

High protein diet	:	64,	50,	62,	60,	66,	68,	58,	44,	36,	70
Low protein diet	:	30,	25,	40,	50,	46,	56,	38			

Examine whether the high protein diet is superior to the low protein at 5 % level of significance.

10. Calculate the rank correlation coefficient for the following data on heights of fathers and sons :—

Height of Father	:	165	163	168	165	168	162	170	165	168	167
Height of son	:	168	166	167	164	169	166	168	166	171	167