POKHARA UNIVERSITY

Level: Bachelor Semester – Spring Year : 2003
Programme: BCA Full Marks : 100
Course: Probability & Statistics Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) 100 students took a test. The result of those who secured less than 60% marks are given below: if the average marks of all students was 50. Find out the average mark of those who secured more than 60% marks. 7

X	0-20	20-40	40-60
f	16	24	30

b) For a group of 50 male workers, the mean and standard deviation of their weekly wages are Rs. 63 and Rs. 9 respectively. For a group of 40 female workers these are Rs. 54 and Rs. 6 respectively. Find the mean and standard deviation for the combined group of 90 workers. 8

2. a) Find the standard error of estimate and analyse your data from your result. 7

X	5	3	3	1
f	7	7	6	4

b) Draw a scatter diagram from the following data:

Height(inch)	62	72	70	60	67	70	64	65	60	70
Wt. (1bs)	50	65	63	52	56	60	59	58	54	65

Also indicate whether Correlation is positive or negative. 8

3. a) A hardware store purchases light bulbs in bulk from three different suppliers, denoted A, B and C. They supply 60%, 30% and 10% of the store requirements respectively. On average, the proportion of faulty supplied by each of the three suppliers is 2%, 5% and 8%. What is the probability that it come from A and B.

b) The monthly demand for computer is known to have the following probability distribution. Find expected demand and obtain its variance.

Demand:	1	2	3	4	5	6
Probability	0.1	0.15	0.20	0.25	0.18	0.12

4. a) State the conditions underlying bionomial distributions. 10 fair coins are flipped. Find the probability of getting 7

   i) exactly 5 heads.

   ii) no heads

   iii) at least one head

   b) State the conditions of poisson distribution. Find the probability that at most 5 defective bolts will be found in a box of 200 bolts, if it is known that 2% of such bolts are expected to be defective. Take $[e^{-4} = 0.0183]$ 8

5. a) What are the importance of normal distribution? Give a normal distribution with $\mu=50$ and $\sigma=10$, find the value of X that has 7

   i) 20% area to its left

   ii) 25% area to its right

   b) Write criteria for a good estimator. What sample size would be required if we wished to be 95% confident that the population mean is within $\pm$ 2 of sample mean & standard deviation is 10. 8

6. a) A sample of 900 members has a mean of 3.4cms and standard deviation 2.6. Find the 95% confident limits of true mean. If you have sample [10,20,30,40,50,60] calculate confidence limits for true mean. 7

   b) The means of the random samples of sizes 9 and 7 are 196.42 and 198.42 respectively. The sum of square of the deviations from the mean are 26 and 98 respectively. Can the samples be considered to have been drawn from the same normal population? 8

7. Write short notes on: (Any Two). 10

   a) Type I and type II errors

   b) Measures of variation

   c) Methods of data collection

   d) Subjective probabilities and probability rule