# ADIT/BIT PROGRAMME 

## 00441

Term-End Examination<br>December, 2011

## CSI-99 : STATISTICAL TECHNIQUES

Time : 3 hours Maximum Marks : 75

Note: Q.No. 1 is compulsory. Answer any THREE questions from the remaining. Use of calculator allowed.

1. (a) Define each of the following concepts, with one suitable example for each.
$5 \times 3=15$
(i) Bar Diagram
(ii) Frequency Polygon
(iii) Histogram
(iv) Arithmetic Mean
(v) Geometric Mean
(b) Fill in the blanks: $\quad 5 \times 3=15$
(i) The median of the data : $5,2,7,1,21$, 11,13 is $\qquad$
(ii) The mode of the data : $5,2,7,1,21$, 11,13 is $\qquad$
(iii) The variance of the data: 5, 2, 7, 1, $21,11,13$, is $\qquad$
(iv) If E and F are two events and P (A) denotes the probability of event $A$ then $P(E U F)=$ $\qquad$
(v) If $C(n, r)$ denotes number of combinations of $n$ objects taken $r$ at a time, then
$C(n, r)=\ldots . . .$.
2. (a) For the following frequency distribution of scores of 40 students (out of 10 marks) given as follows :

| Score: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency: | 2 | 7 | 8 | 5 | 2 | 3 | 0 | 6 | 4 | 2 | 1 |

Find the mean of the distribution.
(b) For the frequency distribution given in Q.No. 2 (a). Find the variance.
3. (a) Suppose a six-faced dice/die is thrown twice. Describe each of the following events : $3 \times 2=6$
(i) The total score is 9 .
(ii) Each throw results in an even score.
(iii) Each throw results in an even score larger than 2.
(b) For each of the events given in Q.No. 3(a) $3 \times 3=9$ above, find the probability.
4. (a) Define the following concepts, each with a suitable example :
(i) Two events being dependent
(ii) Random events
(iii) Sample space
(b) A farmer buys a quantity of seeds from a company that claims that approximately $70 \%$ of seeds will germinate if planted properly. If five seeds are planted, what is the probability that exactly three will germinate ?
5. (a) Calls at a telephone switch board occur at 9 an average rate of six calls per 10 minutes. Suppose the operator leaves for a 5-minute break. What is the probability that exactly two calls come in (and so are unanswered) while the operator is away? (Use Poison's Distribution)
(b) Define each of the following concepts 6
(i) Sampling distribution of statistics
(ii) Estimator
(iii) Null Hypothesis

