2/126

2904E277

Candidate's Seat No :_____

IMBA in APR/BM Semester-2 Examination

DSC-M-STAT-123

Statistics-1

Time : 2-00 Hours] **April-2024** **[Max. Marks : 50**

Instructions :(1) This paper contains **Five** questions.
(2) All questions are compulsory.
(3) Question No.**1, 2, 3, 4** have internal options.
(4) Figures in the right side in parenthesis indicate marks.

Q:1 Differentiate between nominal and ordinal scale. **(10)**

OR

Q:1 (A) Area of 5 different regions is as under. Draw a pie diagram. **(05)**

Region	A	B	C	D	E
Area	15	28	33	42	77

(B) There were 1250 skilled and 400 unskilled workers in a private company in the year 2011. There were 220 female workers and of them, 140 were unskilled. In the year 2012, the number of skilled worker was 1475 and of them, 1300 were males. Out of 250 unskilled workers, 200 were males. In 2013, there were 1700 skilled and 50 unskilled workers. Out of total workers, 250 were females of them 240 were skilled. In the year 2014, there were 2000 workers and of them, 2% were unskilled. Out of the total workers, 300 were females and of them, 10 were unskilled. Present the above data in the form of table. **(05)**

Q:2 Discuss in detail Quota Sampling and Snowball Sampling. **(10)**

OR

Q:2 The frequency distribution of number of cheques received per day for clearing of 5 branches of a bank on 100 days in the year 2014 is as follows. Find the coefficient of skewness by Bowley's method using this distribution. **(10)**

No. of cheques	0-199	200-399	400-599	600-799	800-999
No. of days	10	13	17	42	18

(P. T.O.)

E277-2

Q:3 (A) The probability distribution of a random variable is as follows. **(05)**

Find (i) k (ii) $E(5x+3)$ (iii) $V(3-4x)$

x_i	0	1	2	3	4	5	Total
$P(x_i)$	k	0.2	0.1	k	0.05	0.05	1

(B) In a bolt factory, three machines M_1, M_2, and M_3 manufacture 2000, 2500, and 4000 bolts every day. Of their output 3%, 4%, and 2.5% are defective bolts. One of the bolts is drawn very randomly from a day's production and is found to be defective. What is the probability that it was produced by machine M_2? **(05)**

OR

Q:3 (A) There are 100 tickets in a lottery of Re.1 each. There is only one ticket in the lottery bearing a prize of Rs.80. A person purchases 1 ticket. Find his expectation. **(05)**

(B) If $P(A) = \frac{2}{3}$, $P(B) = \frac{3}{5}$ and $P(B/A) = \frac{3}{4}$ for two events in the sample space of a random experiment, then find $P(A/B)$. **(05)**

Q:4 Define Poisson distribution and state its properties. **(10)**

OR

Q:4 A pharmaceutical lab states that a drug causes negative side effects in 3 of every 100 patients. To confirm this affirmation, another laboratory chooses 5 people at random who have consumed the drug. What is the probability of the following events? **(10)**

i. None of the five patients experience side effects.
ii. At least two experience side effects.

Q:5 **Do as directed: (Any ten)** **(10)**

i. The mean of poisson distribution is 4. its S.D =.....
ii. State the empirical relation between mean, median, mode
iii. State the formula to find variance of discrete variable.
iv. Give two example of continous variable.
v. What will be the probability of losing a game if the winning probability is 0.3 ?
vi. Seven students of a group get 30, 30, 30, 30, 30, 30, 30 marks in a test of 35 marks. What is the standard deviation of their marks?
vii. State the type of classification.
viii. In a poisson distribution P(0) =.....
ix. An event in the probability that will never be happened is called as
x. Give one example of univariate variable.
xi. The median of the data 6, 7, 11, 2, 4 and 9 is.....
xii. In a Binomial Distribution, if p, q and n are probability of success, failure and number of trials respectively then variance is given by