PG – 706

I Semester M.B.A. (Day & Eve.) Examination, June/July 2024
(CBCS) (2021 – 22)
MANAGEMENT
Paper – 1.4 : Statistics for Management

Time : 3 Hours | Max. Marks : 70

SECTION – A

Answer **any five** questions. **Each** question carries **five** marks. **(5×5=25)**

1. What is meant by a symmetrical distribution and a non-symmetrical distribution ? Explain the types using suitable illustrations.

2. A can shoot and hit a target in 2 out of 5 attempts. B can shoot and hit the target in 3 out of 7 attempts. What is the possibility of the target being hit at all if both A and B shoot at the same time ?

3. Find the correlation between the two data sets given below. Find the probable error and interpret the correlation :

X	18	12	30	36	48	60
Y	24	36	48	42	54	66

4. From the following details, find the straight-line trend using the method of least squares. A graph is not necessary.

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales in Rs. 00'000	18	54	63	36	45	81	27	72	81

5. Find the two regression equations from the following data. Find X when Y = 54 and Y when X = 36.

X	40	48	56	64	72	88	96	104
Y	16	24	40	80	48	72	80	88

6. Use the Chi Square Test with a significance level of 5 per cent to find out whether the medicine administered to sheep was effective or not, for the given data.

Details	**Took the Medicine**	**Did not take the medicine**
Took ill	567	812
Did not take ill	583	948

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7. Find the coefficient of variation for the two data sets given below and interpret the same :

Scores of P	16	32	48	80	88	72	32	96
Scores of T	32	40	56	64	80	96	16	24

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks. **(3×10=30)**

8. Explain the concepts of significance and confidence levels, degrees of freedom, type I and II errors, hypothesis and types, one tailed and two tailed tests with illustrations.

9. Using the following data, find the index numbers of price by applying the :
a) Laspeyers method, b) Paasche method, c) Bowley's method,
d) Fischer's ideal index method and e) Marshall-Edgeworth method.

P_0	16	19	23	28	26	24
P_1	17	21	24	29	28	27
Q_0	20	23	25	32	27	22
Q_1	22	24	26	33	29	25

10. The following results were obtained when five different drugs were administered to poultry in four different farms, in terms of health benefits. Using the data given below and the ANOVA technique with a significance level of 5 per cent, determine whether there is any significant difference in the health benefits produced by the five different drugs.

Details	**Drug One**	**Drug Two**	**Drug Three**	**Drug Four**	**Drug Five**
Farm One	12	44	48	16	60
Farm Two	40	24	56	12	52
Farm Three	36	48	60	24	44
Farm Four	52	52	56	28	48

11. Mr. Dimitri has two options of investments but can only do one at a time. In option one, he can set up a men's saloon for Rs. Thirty lakhs. The probability for success is 75 per cent with a cash inflow of Rs. Thirty-six lakhs. If he fails, he can still recover Rs. Eighteen lakhs. When he succeeds, he can further decide to invest Rs. Twenty lakhs in a Unisex saloon. The probability of success is 70 per cent with a cash inflow of Rs. Twenty-two lakhs. If he fails, he loses Rs. Four lakhs.

    In option two, he can invest Rs. Thirty lakhs in a hardware store. The chances of success are 80 per cent with a cash inflow of Rs. Thirty-two lakhs. If he fails, he can still recover Rs. Twenty-three lakhs. When he succeeds, he can decide to invest in a paint shop with an investment of Rs. Twenty lakhs. The probability of success would be 55 per cent with a cash inflow of Rs. Nineteen lakhs. If he fails, he can still recover Rs. Five lakhs.

    Draw a decision tree and the Pay-off table. Advice Mr. Dimitri on the better option to invest.

SECTION – C

This is a **compulsory** question. It carries **fifteen** marks. **(1×15=15)**

12. The Animal Husbandry Department of Karnataka State has reared 3000 chickens in an experiment to rear better quality chicken. The Department wishes to know the results of their experiment as regards the growth of the chickens. Use the data given below and if the development of the chickens adheres to Normal Distribution, reveal the results to the Department.

    The average height of the chickens are 2 feet, with a standard deviation of 4 inches. The average weight of the chickens are 5 Kgs, with a standard deviation of 2 Kgs. Find the following :

    a) How many chickens are taller than 2 feet 6 inches ?

    b) How many chickens are between 1 foot ten inches and 2 feet 7 inches tall ?

    c) How many chickens are shorter than 1 foot 9 inches ?

    d) How many chickens have a weight greater than 8 Kgs ?

    e) How many chickens have a weight less than 4.5 Kgs ?

    f) How many chickens have a weight between 4.75 Kgs and 7.5 Kgs ?