D 115951 **(Pages : 3)** **Name.....**

Reg. No.....

FIRST SEMESTER M.B.A. DEGREE (2024 SCHEME) EXAMINATION JANUARY 2025

(CUCSS)

M.B.A.

BUS IC 07—QUANTITATIVE TECHNIQUES

Time : Three Hours Maximum : 60 Marks

Part A

Answer **all** *the following questions.*
Each question carries 2 *marks.*

1. What is Conditional theorem in probability ? List out its uses.
2. What is Parametric test ? Give examples.
3. What is Proportion test ? Give examples.
4. State the difference between null hypothesis and alternative hypothesis.
5. What do you mean by Chi-square test ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *of the following questions.*
Each question carries 4 *marks.*

6. Define ANOVA. Explain its types.
7. In a factory, Machines P, Q and R manufacture respectively 30 %, 25 % and 45 % of the total production. Of their output 2,1 and 3 percent are defectives products. A product is drawn from the production and is found to be defective. What is the probability that it was manufactured by Machines P, Q and R ?
8. A simple sample of the height of 3,300 Englishmen has a mean of 45.50 inches and a standard deviation of 2.34 inches while a simple sample of heights of 1200 Australian has a Mean of 40.24 inches and standard deviation of 1.84 inches. Do the data indicate that Australians are on the average taller than the Englishmen or not ? Give reasons for your answer.

Turn over

9. Calculate the co-efficient correlation from the following data :

X	:	5	10	15	20	25	30	35	40	45
Y	:	30	34	38	40	42	45	38	36	39

10. One sixth percent of the pen produced by a Pen manufacturing factory turn out to be effective. The pens are supplied in packets of 20. Use Poisson distribution to calculate the approximate number of packets containing.

- No defective
- 1 defective
- 2 defective blades respective in a consignment of 1,00,000 packets.

11. A company employees are randomly assigned to groups which are taught a certain industrial inspection procedure by 3 different methods. At the end of the instructing period., they are tested for inspection performance quality. The following are their scores.

- First Method : 80, 94, 84, 98, 78, 89
- Second Method : 76, 70, 87, 77, 91, 82
- Third Method : 82, 79, 86, 96, 84

Use the H-test to determine at the 0.05 level Significance whether the 3 methods are equal effective or not.

(4 × 4 = 16 marks)

Part C

Answer any **three** *of the following questions.*
Each question carries 8 *marks.*

12. Explain the various approaches of probability.

13. What is Sampling ? Explain the different types of Sampling.

14. In an IQ test of 500 students, the average score was 35 and standard deviation is 20. Find :

a) The number of students exceeding a score of 70

b) The number of students lying between 35 to 70

c) The value of score exceeded by the top 100 students.

15. From the 4 larger cities, random samples of sizes given below were taken and the number of literate and illiterate are recorded. Do the data indicate any significant variations among cities in the tendency person to literate ?

City	Chennai	Bangalore	Mumbai	Delhi	Total
Literate	2000	1000	3000	4000	10000
Illiterate	500	200	1000	1000	2700
Total	2500	1200	4000	5000	12700

16. A Gynaecologist records the Sugar level of patients and collected the following data.

Calculate the regression equation and also estimate the Sugar level if the age of the patient is 55 years.

Age	:	30	35	38	40	43	46	49	50	52
Lower Limit of Sugar Level	:	80	85	90	95	100	120	130	135	140

(3 × 8 = 24 marks)

Part D

Answer the following question which carries 10 *marks.*

17. Solve this using Two-way ANOVA method.

Observation	A	B	C	D	E	F
1	1500	1200	800	1400	1700	1900
2	1100	1300	1400	1800	1700	2000
3	2000	2200	2600	2300	2400	2800

(1 × 10 = 10 marks)