

E 2260

(Pages : 3)

Reg. No.....

Name.....

B.B.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2015

Second Semester

Complementary Course—STATISTICS FOR RESEARCH

(2013 Admission onwards)

Time : Three Hours

Maximum : 80 Marks

Part A (Short Answer Questions)

Answer all questions.

Each question carries 1 mark.

1. Define Probability.
2. Define Equally Likely Events.
3. What is sampling error ?
4. Give the meaning of Judgement Sampling.
5. What is null hypothesis ?
6. What is Type I error ?
7. What is a contingency table ?
8. What is ANOVA ?
9. Mention two uses of a F-test.
10. Indicate two practical applications of *t*-test.

(10 × 1 = 10)

Part B (Brief Answer Questions)

Answer any eight questions.

Each question carries 2 marks.

11. What is Random Experiment ?
12. What is conditional probability ?
13. In how many ways can the letters of the word "INDIA" be arranged ?
14. What is standard error ?
15. What is Random Sampling ?
16. Distinguish between a parameter and a statistic.
17. Explain the term "Level of Significance".
18. What is Chi-square test ?

Turn over

19. Distinguish between a large sample and a small sample.
20. Explain the term "Degrees of Freedom".
21. State the conditions for the use of t -test.
22. What do you mean by "critical region" ?

(8 × 2 = 16)

Part C (Descriptive/Short Essay Type Questions)

Answer any **six** questions.

Each question carries 4 marks.

23. Explain the different approaches to probability.
24. A bag contains 8 white and 4 red balls. Five balls are drawn at random. What is the probability that 2 of them are red and 3 white ?
25. State the procedure followed in testing a hypothesis.
26. What do you mean by estimation ? Discuss the properties of an estimation.
27. Discuss the essential qualities of a good sample.
28. A sample of 900 items is taken from a population with standard deviation 15. The mean of the sample is 25. Test, whether the sample has come from a population with mean 26.8.
29. Describe the usefulness of analysis of variance technique in business decision.
30. In an examination in Statistics, 12 students in one class had a mean grade of 78 with a standard deviation of 6, while in another class had a mean grade of 74 with a standard deviation of 8. Is there a significant difference between the means of the two groups ?
31. Discuss the uses and limitations of Chi-square test.

(6 × 4 = 24)

Part D (Long Essay)

Answer any **two** questions.

Each question carries 15 marks.

32. Distinguish between "census" and "sampling" methods of collection of data and compare their merits and demerits.
33. Three different machines are used for a production. On the basis of the output, test whether the machines are equally effective :

Output		
Machine 1	Machine 2	Machine 3
10	9	20
5	7	16
11	5	10
10	6	14

(Given : Value of F at 5 % level of significance with (2, 9) $d.f.$ = 4.26).

34. The number of car accidents in a metropolitan city was found as 20, 17, 12, 6, 7, 15, 8, 5, 16 and 14 per month respectively. Use Chi square test to check whether these frequencies are in agreement with the belief that occurrence of accidents was same during the 10 months period. Test at 5 % level of significance. (Table value at 5 % level for $V = 9$ is 16.9).
35. (a) Briefly explain the importance of probability in decision-making.
- (b) An insurance company insured 2,000 scooter drivers, 4,000 car drivers and 6,000 truck drivers. The probability of their accident is 0.1, 0.3 and 0.2 respectively. One of the insured persons meets with an accident. What is the probability that he is a scooter driver ?

(2 × 15 = 30)