

**B.B.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2019****Second Semester****Complementary Course—STATISTICS FOR RESEARCH**

(2013–2016 Admissions)

Time : Three Hours

Maximum : 80 Marks

**Part A***Answer all questions.**Each question carries 1 mark.*

Define :

- |                              |                       |
|------------------------------|-----------------------|
| 1. Probability.              | 2. Exhaustive events. |
| 3. Non-probability sampling. | 4. Sampling errors.   |
| 5. Parameter.                | 6. Critical value.    |
| 7. Degree of freedom.        | 8. Variance.          |
| 9. Dependent event.          | 10. Critical region.  |

(10 × 1 = 10)

**Part B***Answer any eight questions.**Each question carries 2 marks.*

11. What are the characteristics of  $\chi^2$ -test ?
12. Explain about contingency table.
13. State addition theorem of probability.
14. What do you mean by (i) union of two events ; (ii) intersection of two events ?
15. What are the properties of probability ?
16. What are the merits of sampling ?
17. Explain simple random sampling.
18. What are the uses of F-distribution ?
19. What are the properties of 'Z' distribution ?
20. What is statistical inference ?
21. Distinguish between large sample and small sample test of significance.
22. What is standard deviation ?

(8 × 2 = 16)

**Turn over**

**Part C**

*Answer any six questions.  
Each question carries 4 marks.*

23. There are two boxes containing 5 white and 4 black balls and other containing 6 white and 5 black balls. One box is chosen and one ball is drawn. If it is white, what is the probability that the box selected is the first ?
24. If  $P(A) = .5$ ,  $P(B) = .6$  and  $P(A \cap B) = .2$ , find
- (i)  $P(A \cup B)$ . (ii)  $P(A')$ .
- (iii)  $P(A \cap B)'$ . (iv)  $P(A' \cap B')$
25. What is meant by stratified random sampling ? What are its merits and demerits.
26. What is  $t$ -distribution ? What are its uses and properties ?
27. In a survey of 70 business firms it was found that 45 were planning to expand their capacities next year. Does the sample information contradict the hypothesis that 70% of the firms in general are planning to expand next year.
28. A salesman is expected to effect an average sale of Rs.3,500. A sample test revealed that a particular salesman had made the following sales :
- Rs. 3,700, 2500, 3400, 5200, 3000 and 2000. Using .05 level of significance conclude whether his work is below standards or not.
29. The number of road accidents per week in a certain area were as follows :
- 12 8 20 2 14 10 15 6 9 4.
- Are these frequencies in agreement with the belief that accident recurred were the same during the 10 week period. (Take all E values as 10).
30. How do you use  $\chi^2$ -test, for testing the goodness of fit ?
31. Of 500 people selected at random from a town 275 were drinkers of tea and others are drinkers of coffee. On the basis of these findings can you conclude that the tea and coffee are equally popular in that town.

(6 × 4 = 24)

**Part D**

*Answer any two questions.  
Each question carries 15 marks.*

32. Explain the meaning of analysis of variance what are the basic assumptions of the analysis of variance ? State the use of analysis of variance in business decision making.
33. What do you mean by probability sampling ? Explain different types of probability sampling.
34. What do you mean by test of hypothesis ? Explain the procedure for testing hypothesis.
35. Explain the following terms in detail :
- (a) Chi-square test.
- (b)  $t$ -test.
- (c) Standard error.

(2 × 15 = 30)