

THIRD SEMESTER B.B.A. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS—UG)

Complementary Course

BBA III C 03—QUANTITATIVE TECHNIQUES FOR BUSINESS

Time : Three Hours

Maximum : 80 Marks

Part I*Answer all the questions.**Each question carries 1 mark.*

Choose the correct answer from the choices given :

1. In testing of hypothesis the inferences are made based on the :
(a) Population. (b) Events.
(c) Samples. (d) Prediction.
2. From a pack of 52 cards one card is drawn at random. Find the probability that it is either a spade or an ace of club :
(a) $12/52$. (b) $13/52$.
(c) $14/52$. (d) $15/52$.
3. The lines of regression intersect at the point :
(a) (X, Y) . (b) Mean of (X, Y) .
(c) $(0, 0)$. (d) $(1, 1)$.
4. The Binomial distribution tends to Poisson distribution at :
(a) $n \rightarrow \infty$. (b) $p \rightarrow 0$.
(c) $n \rightarrow \infty$ and $p \rightarrow 0$. (d) None of the above.
5. The outcomes of an experiment classified as success A and failure A^c will follow a Bernoulli distribution if :
(a) $P(A) = 1/2$. (b) $P(A) = 0$.
(c) $P(A) = 1$. (d) $P(A)$ remains constant in all trials.

Turn over

Fill in the blanks :

6. A random variable X has $E(X) = 2$, $E(X^2) = 8$. Then $V(x) = \underline{\hspace{2cm}}$.
7. The technique of analysis of variance is developed by $\underline{\hspace{2cm}}$.
8. Binomial distribution is made up of $\underline{\hspace{2cm}}$ trials.
9. If coefficient of correlation $r = 0.9$ and the number of observations is 10 then the probable error is $\underline{\hspace{2cm}}$.
10. The probability of getting both heads when two coins are tossed simultaneously is $\underline{\hspace{2cm}}$.

(10 × 1 = 10 marks)

Part II

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

11. What are the functions of Quantitative Techniques ?
12. What are the different methods of measuring correlation ?
13. What are the limitations of regression analysis ?
14. The probability that Sachin Tendulkar scores a century in a cricket match is $1/3$. What is the probability that out of 5 matches, he may score century in :—
 - (1) Exactly 2 matches.
 - (2) No match.
15. What are the properties of Poisson distribution ?
16. In a factory manufacturing optical lenses, there is a small chance of $1/1500$ for any one lense to be defective. The lenses are supplied in packets of 10. Use Poisson Distribution to calculate the approximate number of packets containing (1) one defective ; (2) no defective in a consignment of 20,000 packets. You are given that $e^{-0.02} = 0.9802$.
17. What are the important uses of Z test.
18. A sample of 900 items is taken from a population with S.D.15. The mean of the sample is 25. Test whether the sample has come from a population with mean 26.8 ?
19. What is Chi-square test ?
20. What are the characteristics of Analysis of Variance ?

(8 × 2 = 16 marks)

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

21. What are the limitations of quantitative techniques ?
22. Calculate Pearson's co-efficient of correlation between age and playing habits of students :

Age	:	20	21	22	23	24	25
No. of students	:	500	400	300	240	200	160
Regular players	:	400	300	180	96	60	24

23. Two variables gave the following data $r = 0.7$ Obtain the two regression lines and find the most likely value of Y when $X = 24$:

Variables →	X	Y
Mean	20	15
S.D.	4	3

24. 20% of students in a university are graduates and 80% are undergraduates. The probability that graduate student is married is 0.50 and the probability that an undergraduate student is married is 0.10. If one student is selected at random, what is the probability that the student selected is married ?
25. Consider families with 4 children each. What percentage of families would you expect to have :
- Two boys and two girls.
 - At least one boy.
 - No girls.
 - At the most two girls.
26. What are the properties of normal distribution ?
27. Explain the procedure of χ^2 - test as a test of independence ?
28. Describe the technique of analysis of variance with an illustration for one-way classifications ?

(6 × 4 = 24 marks)

Turn over

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

29. Fit a normal distribution of the following data :

Marks	:	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	:	4	22	48	66	40	16	4

30. The following table gives data regarding election to an office :—

Attitude towards election			
Economic Status	Rich	Poor	Total
Favourable	50	155	205
Non-favourable	90	110	200
Total	140	265	4015

Is attitude towards election influenced by economic status of workers ?

31. Given below is 16 pairs of values showing the performance of two machines A and B. Test whether there is difference between the performances. Table value of Wilcoxon 'T' at 5% significant is 25.

A : 73, 43, 47, 53, 58, 47, 52, 58, 38, 61, 56, 56, 34, 55, 65, 75

B : 51, 41, 43, 41, 47, 32, 24, 58, 43, 53, 52, 57, 44, 57, 40, 68

(2 × 15 = 30 marks)