

B.COM (A&F). DEGREE EXAMINATION NOVEMBER 2019
ACCOUNTING AND FINANCE
FIRST SEMESTER

COURSE : ALLIED – CORE
PAPER : STATISTICS FOR BUSINESS DECISIONS
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS: (10 x 2 = 20)

1. Number of students of seven colleges in a city are: 385, 1748, 1935, 786, 2874, 2865 and 2108. Find the median number of students.
2. Find the coefficient of skewness from the following: Difference of two quartiles = 8, sum of two quartiles = 22, median = 11 and mean = 8.
3. State any two parametric statistical tests.
4. Define the variance ratio test.
5. Give an example of a nominal variable.
6. Write the number of degrees of freedom in 3 x 3 contingency table
7. If $b_{xy} = 0.5, r = 0.8$ and $\sigma_y = 16$. find σ_x
8. The two equations are $8x-10y = 66, 40x-18y = 214$. Find the mean values of X and Y.
9. What are the components of time series?
10. Given the trend equation $Y = 45+2.6X$. Origin is 2007, X unit = 1 year. Shift the origin to 2010 and get the trend equation.

SECTION – B

ANSWER ANY FIVE QUESTIONS: (5 x 8 = 40)

11. Calculate the mean and standard deviation of the following data:

| Age(years) | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 |
|---------------|-------|-------|-------|-------|-------|-------|
| No of workers | 70 | 51 | 47 | 31 | 29 | 22 |

12. Explain the procedure for testing hypothesis
13. Ten specimens of copper wires drawn from a large lot have the following breaking strength (in kg.weight):578, 572, 570, 568, 572, 571, 570, 572, 596, 548. Test whether the mean breaking strength of the lot may be taken to be 578 kg.wt.
14. For the following contingency table (a) state the null and alternative hypotheses (b) calculate the Chi-square statistic.

| Attendance | Income level | | |
|------------|--------------|--------|------|
| | Low | Middle | High |
| Never | 27 | 48 | 15 |
| Occasional | 25 | 63 | 14 |
| Regular | 22 | 74 | 12 |

15. The following correlation coefficients were obtained: $r_{12} = 0.77$, $r_{13} = 0.72$ and $r_{23} = 0.52$.
Find the partial correlation coefficient $r_{12.3}$ and multiple correlation coefficient $R_{1.23}$.
16. For certain data, $Y = 1.2X$ and $X = 0.6Y$ are the regression lines. Compute the value of correlation coefficient and $\frac{\sigma_x}{\sigma_y}$.
17. Explain seasonal variations in time series.

SECTION – C

ANSWER ANY TWO QUESTIONS:

(2 x 20 = 40)

18. (a) Calculate mean deviation from mean and its coefficient from the following series:

| | | | | | |
|-----------------|------|-------|-------|-------|-------|
| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
| No. of students | 5 | 8 | 15 | 16 | 6 |

- (b) Calculate Karl Pearson's coefficient of correlation
- r
- from the following data

| | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|
| X | 105 | 111 | 104 | 112 | 118 | 98 | 116 | 103 | 116 | 112 |
| Y | 62 | 64 | 53 | 60 | 72 | 56 | 68 | 60 | 69 | 65 |

19. A tea company appoints four salesmen A, B, C and D and observes their sales in three seasons – summer, winter and monsoon. The sales in lakhs are given in the following table.

| Seasons | Salesmen | | | |
|---------|----------|----|----|----|
| | A | B | C | D |
| Summer | 36 | 36 | 21 | 35 |
| Winter | 28 | 29 | 31 | 32 |
| Monsoon | 26 | 28 | 29 | 29 |

- (i) Do the salesmen significantly differ in their performance?
(ii) Is there significant difference between the seasons?
20. (i) Two random samples were drawn from two normal populations and their values are:
A; 66 67 75 76 82 84 88 90 92
B; 64 66 74 78 82 85 87 92 93 95 97
Test whether the two populations have the same variance.
- (ii) The following table gives the number of aircraft accidents that occurred during the seven days of the week. Find whether the accidents are uniformly distributed over the week.
- | | | | | | | |
|-------------------|-------|-----|-----|------|-----|-----|
| Days | : Mon | Tue | Wed | Thur | Fri | Sat |
| No. of accidents: | 14 | 18 | 12 | 11 | 15 | 14 |
21. Find the multiple linear regression equation of X_1 on X_2 and X_3 from the following data:
- X_1 : 4 6 7 9 13 15
 X_2 : 15 12 8 6 4 3
 X_3 : 30 24 20 14 10 4
