## TDC (CBCS) Odd Semester Exam., 2023

# COMMERCE

## ( 3rd Semester )

Course No. : COMGE–301T

## ( Business Statistics )

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks*
*for the questions*

## SECTION—A

Answer *fifteen* questions, selecting any *three* from each Unit as directed : 1×15=15

### UNIT—I

1. What do you mean by statistical data?

2. Write down the relationship between mean, median and mode.

( Turn Over )

**3.** The sum of the deviations of the variables from their arithmetic mean is ____.

( Fill in the blank )

**4.** Calculate the range of 47, 50, 49, 70, 63, 55, 81.

## UNIT—II

Define the following in *one* sentence :

**5.** Independent events

**6.** Conditional probability

**7.** Trial

**8.** Random variable

## UNIT—III

**9.** Define positive correlation.

**10.** The correlation coefficient is the GM/AM of the regression coefficients.

( Choose the correct option )

**11.** Regression coefficient lies between 0 and ∞.

( Write True or False )

**12.** ____ correlation is used to measure the correlation of qualitative data.

( Fill in the blank )

( Continued )

## UNIT—IV

**13.** Write down the formula of Paasche's price index number.

**14.** Give one example of irregular variation.

**15.** Name two tests for ideal index number.

**16.** Write two components of time series.

## UNIT—V

**17.** What is type—II error?

**18.** Define the term 'parameter'.

**19.** Mention one method of collection of statistical data.

**20.** What is simple random sampling?

## SECTION—B

Answer *five* questions, selecting *one* from each Unit :      2×5=10

## UNIT—I

**21.** What do you mean by positive and negative skewness?

**22.** Write down two uses of geometric mean.

( Turn Over )

## ( 4 )

### UNIT—II

**23.** Write down the probability mass function of binomial distribution with parameters $n$ and $p$.

**24.** Give two examples of Poisson distribution.

### UNIT—III

**25.** Write down the two lines of regression.

**26.** Mention various methods of studying correlation.

### UNIT—IV

**27.** What is consumer price index number?

**28.** Write down the importances of time series analysis.

### UNIT—V

**29.** Write a note on non-sampling error.

**30.** What are the desirable properties of a good estimator?

## ( 5 )

### SECTION—C

Answer *five* questions, selecting *one* from each Unit : 5×5=25

### UNIT—I

**31.** Calculate mean and standard deviation from the following table : 2+3=5

| Monthly wages | No. of workers |
|---|---|
| 0–10 | 1 |
| 10–20 | 4 |
| 20–30 | 10 |
| 30–40 | 22 |
| 40–50 | 30 |
| 50–60 | 10 |
| 60–70 | 3 |

**32.** What are the different types of average? If two variables are linearly related, then show that their arithmetic mean is also linearly related. 2+3=5

### UNIT—II

**33.** What is the probability of getting 3 white balls in a draw of 3 balls from a box containing 5 white and 4 black balls?

**34.** Briefly explain the 'Bayes theorem'.

### UNIT—III

**35.** Obtain the lines of regression :

| x : | -10 | -5 | 0 | 5 | 10 |
|---|---|---|---|---|---|
| y : | 5 | 9 | 7 | 11 | 13 |

**36.** What is scatter diagram? Indicate by means of suitable scatter diagram different types of correlation that may exist between two variables.

### UNIT—IV

**37.** Fit a linear trend by the method of least squares :

| Year | Production (In crores) |
|---|---|
| 2000 | 7 |
| 2001 | 10 |
| 2002 | 12 |
| 2003 | 14 |
| 2004 | 17 |
| 2005 | 24 |

**38.** Show that Fisher's index number formula satisfies both the time reversal and factor reversal tests.

*( Continued )*

### UNIT—V

**39.** Explain the concept of standard error of a statistic.

**40.** What is sampling method? Discuss the limitations of sampling method. 2+3=5

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