

D 14091

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Name.....

Reg. No.....

**THIRD SEMESTER B.Com./B.B.A. DEGREE (SUPPLEMENTARY)
EXAMINATION, NOVEMBER 2016**

(UG-CCSS)

Common Course

A 13—BASIC NUMERICAL SKILLS

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type Questions. Answer *all* questions. Choose the most appropriate answer :

- 1 The roots of the equation $x^2 - 2x + 1 = 0$.
(a) + 1, 1. (b) - 1, 1.
(c) - 1, - 1. (d) 1, 0.
- 2 If a , b and c are three consecutive numbers of a GP, then :
(a) $b^2 = ac$. (b) $2b = a + c$.
(c) $2a = b + c$. (d) $2a = bc$.
- 3 An additive model 'Y' of time series with components T, S, C and I is :
(a) $Y = T + SXC + I$. (b) $Y = T + S + C \times I$.
(c) $Y = T + S + C + I$. (d) $Y = T + S \times C \times I$.
- 4 The standard deviation of first 5 natural numbers is :
(a) $\sqrt{3}$. (b) $\sqrt{2}$.
(c) 2. (d) 3.

Fill in the blanks :

- 5 If sum of 'n' observation is 150 and their mean is 50, then the value of n is _____.
- 6 The quartile deviation is given by _____.
- 7 $A = \{a, b, c, d\}$, then the cardinality of set A is _____.
- 8 The 10th term of the AP 2, 4, 6, ... is _____.

State whether the following statements are *True* or *False* :

- 9 For a symmetric data, mean = mode = median.
- 10 $n(A \cup B) = n(A) + n(B) + n(A \cap B)$.
- 11 Index numbers are expressed in percentage.
- 12 Bar diagram is a two dimensional representation.

(12 \times $\frac{1}{4}$ = 3 weightage)

Turn over

II. Short Answer Type Questions. Answer *all* nine questions :

- 13 Define singular and non-singular matrix.
- 14 Let 'A' be a set of all whole numbers greater than 3 and smaller than 16 and divisible by 3 and 'B' be the set of all whole numbers greater than 5 and smaller than 35 and divisible by 5. Find $A \cap B$.
- 15 A sum of money at simple interest amounts to Rs. 815 in 3 years and Rs. 854 in 4 years, then find the sum of money.
- 16 Find the sum of the GP :

$$1, 3, 9, 27 \dots \text{ upto 10th term.}$$

- 17 Define combined arithmetic mean.
- 18 Explain the construction of frequency curves.
- 19 What is meant by time series ?
- 20 Distinguish between chronological and qualitative data.
- 21 Solve the following equation :

$$12 + 2(3x - 7) = 5x - 4.$$

(9 × 1 = 9 weightage)

III. Short essay questions. Answer any *five* questions :

- 22 What are the properties of a good measure of central tendency ?
- 23 Define mean deviation. How we obtain mean deviation for a grouped data ?
- 24 Solve the quadratic equation $6x^2 + 11x - 35 = 0$.
- 25 A man invests Rs. 10,000 in an account that pays 8.5 % interest per year, compound quarterly. What is the amount of money that he will have after 3 years ?
- 26 Which term of GP, 5, - 10, 20, - 40 ... is 320.
- 27 Solve using Cramer's rule :

$$\begin{aligned} 5x + y &= -13 \\ 3x - 2y &= 0 \end{aligned}$$

- 28 Explain about Index Numbers.

(5 × 2 = 10 weightage)

IV. Essay questions. Answer any *two* :

- 29 Find the inverse of the matrix $\begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$.

- 30 Calculate standard deviation and arithmetic mean for the following data :

Class	:	20—30	30—40	40—50	50—60	60—70	70—80	80—90
Frequency	:	3	61	132	153	140	51	2

- 31 The first term of an AP is 10 and last term is 50. If the sum of all the term is 480, find the common difference and number of terms.

(2 × 4 = 8 weightage)