C 82628-B (Pages : 4) Name.....

Reg. No.....

SECOND SEMESTER B.VOC. DEGREE EXAMINATION, APRIL 2020

(CUCBCSS—UG)

GEC 2BN 06—BASIC NUMERICAL SKILLS

(2014 Admissions)

Time : Three Hours Maximum : 80 Marks

Part A

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

I. Choose the correct answer :

1 The process of assembling primary data is called ———— of statistics.

(a) Collection. (b) Classification.

(c) Analysis. (d) Tabulation.

2 Cartograms are used to give quantitative information on ———— basis.

(a) Historical. (b) Chronological.

(c) Geographical. (d) Absolute.

3 The mode a distribution is the value that has the greatest concentration on ————.

(a) Median. (b) Average.

(c) Mean. (d) Frequencies.

4 In a moderately asymmetrical distribution ————

(a) QD = MD = SD. (b) QD >MD > SD.

(c) QD < MD < SD. (d) QD ≥ MD ≥ SD.

5 In a symmetrical distribution coefficient of skewness is ————.

(a) 1. (b) – 1.

(c) $\sqrt{1}$. (d) 0.

II. Fill in the blanks :

6 If $\beta_2 = 3$, the distribution is _____.

7 _____ variations are periodic movements.

8 _____ is the best measure of dispersion.

9 Index numbers are expressed in _____.

10 The arithmetic mean of a and b is _____.

(10 × 1 = 10 marks)

Part B

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

11 Explain the problems in the construction of index numbers.

12 Write short notes on :

(a) Mean deviation ; and (b) Lorenz curve.

13 Prove that $(A \cap B)' = A' \cup B'$ by means of Venn diagram.

14 Solve $x^4 - 10x^2 + 9 = 0$.

15 If $A = \{1, 3, 5, 7\}$, $B = \{5, 9, 13, 17\}$ and $C = \{1, 3, 9, 13\}$, find (a) $A - B$; (b) $B - A$; (c) $A \cap B$; (d) $A \cup B$.

16 Calculate Harmonic mean from the following data :

Marks	:	0–10	10–20	20–30	30–40	40–50
No. of students	:	2	7	13	5	3

17 Explain the requisites of good average.

18 Differentiate questionnaire with schedule.

19 What are the important methods used for measuring the trend ?

20 Write a note on cumulative frequency curve.

(8 × 2 = 16 marks)

Part C (Short Essay Questions)

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

21 Write a note on the measures of central tendency.

22 If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ show that $A^2 - 4A - 5I = 0$.

23 Find the sum of 'n' terms of an A.P. whose 7^{th} term is 30 and 13^{th} term is 54.

24 For a certain commodity the demand (d) in kg for a price (p) in Rs. Is given by $d = 100 (10 - p)$. The supply (s) in kg for a price (p) in Rs. Is given By $S = 75 (p - 3)$. The market is such that demand equals supply. Find the market price and quantity that will be bought and sold.

25 Calculate Karl Pearson's co-efficient of skewness and interpret the result :

Income	Above 0	Above 10	Above 20	Above 30	Above 40	Above 50	Above 60	Above 70	Above 80
No. of persons	150	140	100	80	80	70	30	14	0

26 Construct price index by using Laspeyre's and Paasche's method :

Commodities		2016		2017	
		P	Q	P	Q
A	...	2	8	4	6
B	...	5	10	6	5
C	...	4	14	5	10
D	...	2	19	2	13

27 Compute quartile deviation and its co-efficient :

Marks	:	10	20	30	40	50	60
No. of students	:	4	7	15	8	7	2

28 Find the first two natural numbers whose sum is 18 and product is 72.

(6 × 4 = 24 marks)

Part D (Essay Questions)

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

29 Below are given the figures of production in (thousand quintals) of a sugar factory :

Year	:	2000	2001	2002	2003	2004	2005	2006
Production (in '000 quintals)	:	80	90	92	83	94	99	92

(a) Fit a straight line trend to these figures.

(b) Estimate the production in 2009.

30 Find the inverse of A where $A = \begin{bmatrix} 3 & 5 & 7 \\ 2 & -3 & 1 \\ 1 & 1 & 2 \end{bmatrix}$.

31 Explain the concept of statistical enquiry with the procedure to conduct the same.

(2 × 15 = 30 marks)