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Name...

Reg. No.....................................

SECOND SEMESTER B.VOC. DEGREE EXAMINATION, APRIL 2017

Common Course

Multimedia, Software Development, Software Technology

GEC 2 NM 06—BASIC NUMERICAL SKILLS

Time : Three Hours

Maximum : 80 Marks

Part A

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

I. Choose the correct answer :

1 Φ indicates :

    (a) Not a set.

    (b) Not a subset.

    (c) Subset of every set.

    (d) Not existing.

2 Square is a :

    (a) Simple bar diagram.

    (b) Cumulative frequency graph.

    (c) Volume Diagram.

    (d) Two dimensional diagram.

3 Total interest at the end of the 5th year for RS 5000 at 10% per annum, SI :

    (a) 7500.

    (b) 2500.

    (c) 500.

    (d) 2000.

4 The equation $X^2 + 4 = 0$ is :

    (a) Simple equation.

    (b) Cubic equation.

    (c) Quadratic equation.

    (d) None of these.

5 The Arithmetic Mean of 3,4, 6, 7, 10 :

    (a) 4.

    (b) 5.

    (c) 3.

    (d) 6.

II. Fill in the blanks :

6 Half the distance between the third and the first quartile is ————.

7 The 10th term of the series $4 - 8 + 16 - 32 +$ ————.

Turn over

8 ——————— shows the magnitude of change in the price, quantity or value of a group of related variables over a periods of time.

9 ——————— is the difference between largest value and smallest value of the variable.

10 If a set has 'n' elements then it has ——————— subsets.

(10 × 1 = 10 marks)

Part B (Short Answer Questions)

*Answer any **eight** questions.*

Each question carries 2 marks.

11 In a distribution, the difference between two quartiles is 15 and their sum is 35. Q_2 is 20. Find the co-efficient of skewness.

12 Explain the limitation of index numbers.

13 Find two natural numbers whose sum is 18 and whose product is 72.

14 Explain the essential properties of a good average.

15 Prove that $A \cap (B \cap C) = (A \cap B) \cap C$ by means of a Venn diagram.

16 What are the merits and demerits of Standard Deviation.

17 Find the trend values by using 3 year moving average :

Year	:	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Value	:	170	231	261	264	278	302	289	297	340	273

18 Calculate GM of the following figures :

57.5, 87.75, 53.5, 73.5 81.75

19 Find four numbers in A. P. whose sum is 2 and the product of whose extremes is 10 times the product of means.

20 $A = \{1 \ 2 \ 3 \ 4\}$; $B = \{2 \ 4 \ 6 \ 8\}$; $C = \{3 \ 4 \ 5 \ 6\}$ verify $A \cap (B \cap C) = (A \cap B) \cap C$.

(8 × 2 = 16 marks)

Part C (Short Essay Questions)

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

21 What are the steps in the construction of index numbers ?

22 Find compound interest on Rs. 8,000 for 4 years if interest is payable half yearly for the first 3 years at 8% per annum and for the 4th year, the interest is payable quarterly at 6 per annum.

23 Solve $x - y = 2$
$$2x^2 + 5y^2 = 23.$$

24 Write a brief note on :

    (a) Kurtosis.

    (b) Lorenz curve.

    (c) Secular trend.

    (d) Seasonal variation.

25 Compute Mean Deviation about median and the coefficient of MD for the distribution given below :

Size	:	5	8	13	20	25	30	40
Frequency	:	2	10	20	35	18	7	5

26 Draw less than Ogive from the following data :

Marks	:	0–20	20–40	40–60	60–80	80–100
No. of students	:	10	15	30	35	10

27 Find the adjoint of the matrix :

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$$ and verify the theorem $A\,(Adj\,A) = (Adj\,A)\,A = |\,A\,|\,I.$

28 Find the sum of the series :

    A 72 + 70 + 68 +..........to 42

    B 19 + 17 + 15 +..............to 15.

$(6 \times 4 = 24 \text{ marks})$

Turn over

Part D (Short Essay Questions)

Answer any **two** *questions.*

Each question carries 15 *marks.*

29 What is Statistical Enquiry ? State the preliminary steps you would take for planning a statistical enquiry.

30 Solve the equations using matrix :

$5x - 6y + 4z = 15$
$7x + 4y - 3z = 19$
$2x + y + 6z = 46.$

31 An enquiry into the budgets of middle class families in Chennai gave the following information :

Expenses	Price in 2014	Price in 2015
Food (35%)	150	174
Rent (15%)	90	60
Clothing (20%)	100	125
Fuel (10%)	20	25
Misc (20%)	60	90

What changes in cost of living figure of 2015 have taken place compared to 2014 ?

$(2 \times 15 = 30$ marks$)$