15415 (Pages 3) Name.....

Reg. No.....

FOURTH SEMESTER B.Com. DEGREE EXAMINATION, MAY 2011

(CCSS)

Common Course

BC4A 13/BB4 A 13—BASIC NUMERICAL SKILLS

(Common for B.B.A. and B.Sc. Alternative Pattern and B.T.A.)

Three Hours Maximum : 30 Weightage

I Objective Type Questions. Answer *all* twelve questions :

Choose the correct answer :

1 The distance of the point P (– 3, 4) from the origin is :

(a) 3. (b) 4.

(c) 5. (d) 7.

2 The equation $y = 2x + 5$ has :

(a) No solution. (b) One solution.

(c) Three solution. (d) Infinitely many solution.

3 The quadratic equation $ax^2 + bx + c = 0$ has equal roots if :

(a) $b^2 - 4ac < 0$. (b) $b^2 - 4ac > 0$.

(c) $b^2 - 4ac = 0$. (d) $b^2 - 4ac = 1$.

4 The point of intersection of the 'less than' and 'more than' ogive corresponds to :

(a) mean. (b) median.

(c) geometric mean. (d) harmonic mean.

Fill in the blanks :

5 The point whose co-ordinate is (– 1, 1) lies in ———— quadrant.

6 A and B are two sets and ACB, then A $\cap$ B = ————.

7 If A is a matrix of order 4 × 3 and B is a matrix of order 3 × 5, then the order of the product AB is ————.

8 In a symmetric distribution, the relation between the mean, median and mode is given by ————.

Answer the following :—

9 What is the common difference of the A.P. $-1, \frac{1}{4}, \frac{3}{2}, \cdots$?

10 What is the simple interest for Rs. 10,000 at the rate of 15% per annum for 2 years ?

11 Define zero (or null) matrix.

12 Write down the important methods of studying dispersion ?

(12 × ¼ = 3 we

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

13 Solve $\frac{7x+4}{x+2} = -\frac{4}{3}$.

14 Let $A = \begin{bmatrix} 2 & 5 \\ -3 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 4 & -5 \\ 3 & K \end{bmatrix}$, what value of K if any make AB = BA.

15 $A = \{x : x$ is a natural number satisfy $1 < x \leq 6\}$

$B = \{x : x$ is a natural number satisfy $6 < x \leq 10\}$.

Find $A \cup B$ and $A \cap B$?

16 Find the 8^{th} term of the G.P. $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \cdots$.

17 Is the inverse of the matrix $A = \begin{bmatrix} 2 & -4 \\ -2 & 4 \end{bmatrix}$ exists ? Justify your answer ?

18 Solve the equation $2x^2 + 2\sqrt{3}\,x + 1 = 0$.

19 Define Arithmetic mean of a set of numbers.

20 Define Karl Pearson's coefficient of skewness.

21 What do you mean by coefficient of variation ?

(9 × 1 = 9 weig

III. Short Essays *or* Paragraph Questions. Answer any *five* questions from seven :

22 Prove that the points (6, 2), (3, – 1) and (– 2, 4) represents the vertices of a right a triangle.

23 The ages of Hari and Hani are in the ratio 4 : 5. Eight years from now, the ratio of thei will be 5 : 6. Find their present age ?

24 Insert three arithmetic means between 3 and 19.

25 Solve the system of equations with the help of matrice.

$5x + 2y = 4$

$7x + 3y = 5$

26 Find the three numbers in G.P. whose sum is 26 and product is 216.

27 Construct a histogram and frequency polygon :

Class	:	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 – 44	45 – 49	50 – 54	55 – 59	60 – 64	65 – 69
Frequency	:	9	11	10	44	45	54	37	26	8	5	1

28 Prepare a questionnaire for understanding consumer preferences to evolve better ways of providing shopping facilities to the consumer visiting Malls.

(5 × 2 = 10 weightage)

IV. Essay questions. Answer any *two* questions from three :

29 A manufacturer of radio sets produced 600 units in the third year and 700 units in the seventh year. Assuming that the production uniformly increases by a fixed number every year :

Find :

(i) The production in the first year

(ii) The production in the 10^{th} year

(iii) The total production in 7 year.

30 Govind borrowed Rs. 26,400 from a bank to buy a Scooter at the rate of 15% per annum compounded yearly. What amount will be pay at the end of 2 years and 4 months to clear the loan ?

31 What do you understand by skewness ? Using figures distinguish between positive and negative skewness. Also show the relative positions of mean, median and mode in the figure.

(2 × 4 = 8 weightage)