

FOURTH SEMESTER B.Com. DEGREE EXAMINATION, MARCH 2013

(CCSS)

BC4 A13/BB4 A13—BASIC NUMERICAL SKILLS

Time : Three Hours

Maximum : 30 Weightage

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

Choose the correct answer :

- 1. The equation $y = 2x + 5$ has :**

- (a) No solution.
- (b) One solution.
- (c) Three solutions.
- (d) Infinitely many solutions.

- 2. $(2, 3)$ is a solution of the equation $y = kx + 2$, the value of k is :**

- (a) 2. (b) $\frac{1}{2}$.

(c) (d) 2.

- 3. The mid-point of a class interval is also known as :**

- (a) **Class limit.** (b) **Class mark.**
(c) **Class boundary.** (d) **Class width.**

- 4. Which of the following collection is not a set ?**

- (a) The collection of natural numbers between 2 and 20.
- (b) The collection of numbers which satisfy the equation $5x + 6 = 0$.
- (c) The collection of prime numbers between 1 and 100.
- (d) The collection of beautiful women in Jalandhar.

Fill in the blanks

- 5. A and B are two sets and $A \subset B$, then $A \cap B =$ _____.**

6. The common ratio of the G.P. $1, \frac{1}{3}, \frac{1}{9}, \dots$ is _____.

- 7. Median.** **Quartile.**

8. The distance of the point P (2, 5) from the origin is _____

Turn over

Answer the following

9. What is the simple interest for Rs. 10,000 at the rate of 15% per annum for 2 years ?
10. Define disjoint sets ?
11. The standard deviation of a set of 100 observations is 10. What will be the new standard deviation if 5 is added to each observation ?
12. What is the 8th term of an A.P. whose first term is a and common difference d ?
(12 x $\frac{1}{4}$ = 3 weightage)

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

13. Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$. Find AB and BA . What is your conclusion
14. Solve the quadratic equation $2x^2 - \sqrt{3}x - 1 = 0$.
15. $A = \{3, 6, 12, 15, 18, 21\}$, $B = \{4, 8, 12, 16, 20\}$, $C = \{6, 16, 20, 25\}$. Find (a) $A \cap B$ and $B \cup A$.
(ii) $A \cap (B \cap C)$.
16. Is $(1, 2)$ and $(2, -1)$ are solutions of $x + 2y = 0$? How many solutions for this equation.
17. Find the n th term of the G.P. $1 \ 1 \ 1 \ \dots$
18. Solve $\frac{7x+4}{x+2} = \frac{4}{3}$
19. What do you mean by coefficient of variation ?
20. Define Arithmetic mean of a set of numbers.
21. Find the mean of n natural numbers ?

(9 x 1 = 9 weightage)

III. Short Essay or Paragraph questions, Answer any five questions from *seven* :

22. Find the mean and variance of the first n natural numbers.
23. $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 5, 6\}$. Find:
(b) $A \cup (A \cap B)$.

24. 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 6 1**

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

26. Solve $\frac{2}{3}x^4 = 3$.

27. Solve the system of equations using matrices

$$3x + 2y = 6$$

$$5x + 4y = 8.$$

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

(5 x 10 weightage)

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

29. Calculate **Pearsons** coefficient of skewness

x **12.5 17.5 22.5 27.5 32.5 37.5 42.5 47.5**

28 42 54 108 129 61 45 33

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. A man saves Rs. 32 during the first year, Rs. 36 in the next year, Rs. 40 in the third year. If he continues his savings in this sequence, in how many years he save Rs. 2,1100.

(2 x 4 = 8 weightage)