

FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2022

(Regular/Improvement/Supplementary)

B.Com Professional

GBCP1B03T: NUMERICAL SKILLS

Time: 3 Hours

Maximum Marks: 80 .

PART A: Answer all the questions. Each carries 1 mark.

Choose the correct answer.

1. If $A = \{1, 6, 5, 4, 7, 8, 9\}$, $B = \{5, 6, 8\}$, then

- a). A is a subset of B
 b). B is a subset of A
 c). A is a proper subset of B
 d). None of the above

Which of the following two sets are equal?

- a). $A = \{1, 2\}$ and $B = \{1\}$
 b). $A = \{1, 2\}$ and $B = \{1, 2, 3\}$
 c). $A = \{1, 2, 3\}$ and $B = \{2, 1, 3\}$
 d). $A = \{1, 2, 4\}$ and $B = \{1, 2, 3\}$

3. Solution of the equation $4x + 5 = 13$ is.....

- a). $x = 1$
 b). $x = 3$
 c). $x = 2$
 d). None of the above

4. The value of k, if $x = 1$, $y = 2$ is a solution of the equation $2x + 3y = k$.

- a) 5
 b) 6
 c) 7
 d) 8

5. A sum of money doubles itself at compound interest in 15 years. It will become 8 times in.....

- a) 60 years
 b) 45 years
 c) 40 years
 d) 30 years

Fill in the Blanks

6. If $A = \{2, 4, 6\}$, then $P(A)$ contains-----elements

7. Data originally collected for an investigation are known as.....

8. The collected data are arranged according to the order of time is called.....classification.

9. Data taken from the publication will be considered as.....

10. Component of a time series is attached to long term variation.

(10 × 1 = 10 Marks)

PART B. Answer any eight questions. Each carries 2 marks.

11. What is a set? Give an example

12. Define Improper subset. Give an example.

13. State and prove De Morgan's laws in sets.

14. Solve $2x = 5$

15. Find two numbers whose sum is 30 and the difference is 4

16. Solve $5(3 + x) + 2(4 - 3x) = -11 - 2(x - 1)$

(PTO)

17. Find the number of years a sum of Rs. 12000 will become Rs. 20000 if the rate of interest is 8%.
18. Distinguish between Questionnaire and Schedule.
19. What are irregular variations of time series? Give examples.
20. From the following data construct an index:

Commodity	A	B	C	D	E
Price in 2019	50	60	40	20	90
Price in 2020	70	60	80	100	40

(8 × 2 = 16 Marks)

PART C: Answer any six questions. Each carries 4 marks.

21. If $A = \begin{bmatrix} 2 & 3 \\ 7 & 4 \end{bmatrix}$, $B = \begin{bmatrix} -1 & 4 \\ 5 & -2 \end{bmatrix}$ and $C = \begin{bmatrix} 5 & 8 \\ 1 & 7 \end{bmatrix}$. Verify that $A(B + C) = AB + AC$
22. Let $A = \{0, 1, 2, 3, 4, 5\}$, $B = \{0, 1, 2, 3, 7, 9\}$ find a relation R , where $a R b$ if and only if $a+b$ is divisible by 5
23. Solve $(x - 2)(y + 5) = (x - 1)(y + 2)$, $(y - 3)(x + 4) = (x + 7)(y - 4)$
24. If the value of a product is depreciated 20% annually, what will be its estimated value at the end of 10th year if its present value is Rs. 5000?
25. Draw a histogram for the following data:

Class	10 - 15	15 - 20	20 - 30	30 - 40	40 - 50	50 - 75	75 - 100
Frequency	4	12	20	18	14	25	10

26. What is a frequency polygon? How will you construct it?
27. Distinguish between absolute and relative measures of dispersion.
28. What is meant by skewness? Explain different methods for measuring skewness.

(6 × 4 = 24 Marks)

PART D: Answer any two questions. Each carries 15 marks.

29. The rate of monthly salary of a person is increased annually in A.P. It is known that he was drawing Rs. 400 per month during the 11th year of his service and Rs. 760 during the 29th year. Find:
 A) Starting salary B) Annual increment C) Salary after 20 years D) Salary after 32 years
30. Discuss the graphical methods of presenting frequency distributions.
31. Compute AM, GM and HM for the following data:

Class	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40
Frequency	5	8	7	12	28	20	13	7

(2 × 15 = 30 Marks)