

D 94192

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Name.....

Reg. No.....

FIRST SEMESTER B.VOC. DEGREE EXAMINATION, NOVEMBER 2020Logistics Management
SDC1LM01—BUSINESS MATHEMATICS

Time : Three Hours

Maximum : 80 Marks

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

A. Choose the correct answer :

1 The equation $x^2 + 4 = 0$ is a :

- (a) Quadratic equation. (b) Cubic equation.
(c) Simple equation. (d) None of these.

2 \emptyset is :

- (a) Not a set. (b) Not a subset.
(c) Subset of every set. (d) Not existing.

3 _____ satisfies the equation $x + y + 1 = 0$:

- (a) $x = 0, y = 0$. (b) $x = 1, y = 2$.
(c) $x = 0, y = 1$. (d) $x = 2, y = 2$.

4 When $A = (a, b)$, its power sets has _____ elements.

- (a) 2. (b) 4.
(c) 8. (d) 1.

5 Find x if the numbers $x, 7, 28$ form a G.P.

- (a) 4. (b) 0.
(c) $\frac{7}{4}$. (d) 6.

Turn over

B. Fill in the blanks :

- 6 A _____ is a symbol which represents a quantity that can vary.
- 7 A square matrices who's main diagonal is assinty value '1' and each of the other element is '0' is known as _____.
- 8 The notation nPr means the number of _____ of n things taken r at a time.
- 9 Unit matrix is also known a _____.
- 10 A list of numbers having specific relation between the consecutive terms is generally called _____.

(10 × 1 = 10 marks)

Part B

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

- 11 What is row matrix ?
- 12 What is power set ?
- 13 What is rational numbers ?
- 14 What is identity property ?
- 15 What is infinity ?
- 16 What is annuity due ?
- 17 What is order of matrix ?
- 18 What is equivalent set ?
- 19 What do you mean by permutation ?
- 20 Calculate $9!$.
- 21 What is annuity certain ?
- 22 Solve $3x = 6$.

(8 × 2 = 16 marks)

Part C

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

23. Ages of 2 people are in the ratio 3 : 4, after 10 years their ages would be in the ratio of 4 : 5. Find their ages.
24. If C varies directly as the square root of D and C = 6, when D = 256 ; Find C when D = 625.
25. Two third of a number increased by 15 equals 27. Find the number.
26. Find the number of arrangements that can be made out of the letters of word "ASSASSINATION".
27. Solve $\log_5 (x - 7) = 1$.
28. Which of the following two ratios is greater 4 : 5 and 6 : 7 ?
29. Solve $2x^2 + 8x + 8 = 0$.

30. Given $A = \begin{bmatrix} 2 & 2 & 2 \\ 2 & 1 & -3 \\ 1 & 0 & 4 \end{bmatrix}$; $B = \begin{bmatrix} 3 & 3 & 3 \\ 3 & 0 & 5 \\ 6 & 9 & -1 \end{bmatrix}$; $C = \begin{bmatrix} 4 & 4 & 4 \\ 5 & -1 & 0 \\ 2 & 3 & 1 \end{bmatrix}$.

Determine $497A - 2B - 3C$.

31. Solve $8x + 7y = 10$

$$11x = 10(1 - y)$$

(6 × 4 = 24 marks)

Part D

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

32. What are combinations ? Explain the equations and steps to do.

33. Solve $x + y = 5$

$$2x^2 - y^2 - 10x - 2xy - 28 = 0.$$

Turn over

34. Given the matrices :

$$A = \begin{bmatrix} 2 & 3 & 5 \\ 5 & 4 & 2 \\ 2 & 5 & 9 \end{bmatrix} \text{ and } B = \begin{bmatrix} 5 & -9 & 6 \\ 2 & 3 & -5 \\ 4 & -9 & 7 \end{bmatrix}.$$

Find :

(i) $A + B$.

(ii) $A - B$.

35. If $A = (1, 2, 3)$, $B = (3, 4, 5)$, $C = (1, 3, 5)$. Prove that $A - (B \cup C) = (A - B) \cap (A - C)$.

(2 × 15 = 30 marks)