

E 5785

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Reg. No.....

Name.....

B.B.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2013

Second Semester

Complementary Course—MATHEMATICS FOR MANAGEMENT

Maximum Weight : 25

Time : Three Hours

Part A

Answer all questions.

Each bunch of 4 questions carries a weight of 1.

- I. 1 The Standard Equation of an ellipse is _____.
- 2 The slope of the line joining $A(x_1, y_1)$ and $B(x_2, y_2)$ is _____.
- 3 Area of the triangle whose vertices are (x_1, y_1) , (x_2, y_2) and (x_3, y_3) is _____.
- 4 Distance between the parallel lines $Ax + By + C_1 = 0$ and $Ax + By + C_2 = 0$ is given by _____.
- II. 5 For any two sets A and B, $n(A \cup B) =$ _____.
- 6 Two ordered pairs (a_1, b_1) and (a_2, b_2) are equal if and only if _____.
- 7 Any subset of $A \times B$ is called a _____.
- 8 Give an example for a relation which is not reflexive but symmetric.
- III. 9 $\frac{d}{dx}(C) =$ _____ where C is a constant.
- 10 The derivative of $\log x$ with respect to y is _____.
- 11 The integral of $\sin x$ with respect to x is _____.
- 12 The second derivative of e^{ax} with respect to x is _____.
- IV. 13 $\lim_{x \rightarrow 1} \frac{x-1}{x+1} =$ _____.
- 14 The integral of $\int \frac{1}{\sqrt{x}} dx =$ _____.

Turn over

- 15 The centre of the circle $x^2 + y^2 = a^2$ is _____.
- 16 Let $f(x)$ be a differentiable function and has an extreme value at x_0 , then $f'(x_0) =$ _____.

(4 × 1 = 4)

Part B*Answer any five questions.**Each question carries a weight of 1.*

Write short note on :

17. Equivalence relation.
18. Slope of a line segment.
19. Quotient rule in differentiation.
20. Concurrency of 3 lines.
21. Domain of a function.
22. If u and v are any two functions in x , then $\int uv \, dx =$ _____.
23. Function of function rule for differentiation.
24. Venn diagram.

(5 × 1 = 5)

Part C*Answer any four questions.**Each questions carries a weight of 2.*

25. Find the centre and radius of the circle $x^2 + y^2 + 8x + 10y - 8 = 0$.
26. Find the area of the triangle whose vertices are $(4, 4)$, $(3, -2)$ and $(-3, 16)$.
27. Let N be the set of natural numbers. Define a real valued function $f: N \rightarrow N$ defined by $f(x) = 2x + 1$. Using this definition find $f(2)$, $f(5)$ and $f(7)$.
28. Find $\frac{dy}{dx}$ when x and y are connected by the relation $\sqrt{x} + \sqrt{y} = \sqrt{a}$.
29. Find $\frac{dy}{dx}$ when $x = ct$, $y = \frac{c}{t}$.
30. Integrate with respect to x ; $\sin(Tx - 13)$.

(4 × 2 = 8)

Part D

Answer any **two** questions.
Each question carries a weight of 4.

31. Evaluate $\int \frac{\sin(2+3\log x)}{x} dx$.
32. Find the equation of a line perpendicular to the line $x - 2y + 3 = 0$ and passing through the point $(1, -2)$.
33. Find the maximum value of $3x^4 - 8x^3 + 12x^2 - 48x + 25$ on the interval $[0, 3]$.

(2 × 4 = 8)