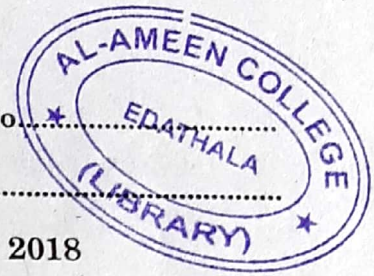


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Reg. No.

Name.....



B.B.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2018

Second Semester

Complementary Course—MATHEMATICS FOR MANAGEMENT

(2013—2016 Admissions)

Time : Three Hours

Maximum Marks : 80

Part A

Answer all questions.

1 mark each.

1. The distance of the point (x, y) from x -axis is _____.
2. Slope of the line joining $(2, 3)$ and $(4, 8)$.
3. Images of the point $(2, 3, 4)$ with respect to xy plane is :
4. The centre of the circle $x^2 + y^2 = 9$ is :
5. $\lim_{x \rightarrow 9} \frac{x^2 - 81}{x - 9}$.
6. Find the second derivative of $x^3 + 3x + 4$.
7. Value of $\int 3x + 4 dx$.
8. Give an example for an even function.
9. Explain maxima and minima of a function.
10. $\frac{dy}{dx} \cdot \frac{dx}{dy} =$ _____.

(10 × 1 = 10)

Part B

Answer any eight questions.

2 marks each.

11. Find the derivative of $2x^3 - 5x^4$ using first principle.
12. Find the derivative of $\frac{3x^2 - 2x}{3x + 2}$.

Turn over

13. Find the co-ordinate of the point which divides the line segment joining the points $(-2, 3, 4)$ and $(1, 3, 1)$ in the ratio $2 : 3$ externally.
14. Find the n^{th} derivative of $\frac{1}{1-x}$.
15. Define function. Draw the graph of the function $y = 4x + 2$.
16. Evaluate $\int \frac{dx}{\sqrt{x+1}}$.
17. Evaluate $\lim_{x \rightarrow a} \frac{e^{3x} - 1}{x}$.
18. Evaluate $\int \frac{\tan^{-1} x}{1+x^2} dx$.
19. Differentiate $x^2 \sin x^2$.
20. Find the point of intersection of the lines $2x - 3y + 4 = 0$ and $3x + 4y - 5 = 0$.
21. Find the centre and radius of the circle $x^2 + y^2 + 4x - 6y = 3$.
22. Evaluate $\int \sin^{-1} x dx$.

(8 × 2 = 16)

Part C

Answer any six questions.
4 marks each.

23. Prove that $(3, 1)$, $(5, -5)$ and $(-1, 13)$ are collinear and find the equation of the line through these three points.
24. Find the Co-ordinates of the orthocentre of the triangle Whose Vertices are $(-1, 3)$, $(2, -1)$ and $(0, 0)$.

25. Differentiate the following with respect to x :

(a) $\log\left(x + \sqrt{x^2 + a^2}\right)$.

(b) $\log\left(\sqrt{x-a} + \sqrt{x-b}\right)$.

(2 + 2 = 4)

26. Evaluate :

(a) $\int \left(x + \frac{1}{x}\right)^2 dx$.

(b) $\int \frac{x^2}{x+1} dx$.

27. Evaluate $\int \frac{e^x - e^{-2x}}{e^x + e^{-x}} dx$.

28. Find the maxima and minima of the function :

(a) $x^2 - 6x + 16$.

(b) $x + \frac{4}{x+2}$.

(2 + 2 = 4)

29. Find the derivatives of $y = \sin x$ using first principle.

30. Find the point of Intersection of pairs of lines $4x - 3y + 7 = 0$ and $2x + 7y - 5 = 0$.

31. Find the co-ordinate of the foci, vertices and length of latus rectum of the hyperbola $16xy - 9yz = 576$.

(6 × 4 = 24)

Part D

Answer any two questions.
15 marks each.

32. Evaluate :

(a) $\int x^3 \log 5x dx$.

(b) $\int (\log x)^3 dx$.

Turn over

33. (a) Find a line perpendicular to $4x - 3y + 7 = 0$ and passing through the origin.

(b) Find the point of intersection of the lines :

$$2x - 3y + 4 = 0 \text{ and } 3x + 4y - 5 = 0.$$

34. Find the maxima and minima of the function :

(a) $x^5 - 6x^3 + 7x - 3.$

(b) $x + \frac{1}{x+1}.$

(c) $3x^3 + 4x^2 + \frac{5}{x}.$

35. Solve the system of equation :

$$x + y + z = 6, x + 2y + 3z = 14$$

$$-x + y - z = -2.$$

(2 × 15 = 30)