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VINR COACHING CENTER
CLASS - XI
MATHS CHAPTER 10 & 11 MARK - 90

I. Choose 20 X 1 = 20

II. PART - B (ANSWER ANY 7] Q. NO 29 IS COMPULSORY

21. Find slope of tangent line to the graph $F(x) = -5x^2 + 7x$ at $(5, F(5))$

22. Find derivative using First principle $F(x) = -x^2 + 2$

23 Differentiate $y = x \sin x \cos x$

24. Differentiate $y = e^{\sin x}$

25. Find f'' if $F(x) = x \cos x$

26 $\int (4x+5)^6$

27. $\int \frac{e^x}{e^x - 1} dx$

28. If $F'(x) = 4x - 5$ and $F(2) = 3$ Find $F(x)$

29. $\int x \log x$

30. Find $\frac{dy}{dx}$ if $x = a(t - \sin t)$ $y = a(1 - \cos t)$

III. PART - C any 7 Q. NO : 40 IS COMPULSORY

31. Find $\frac{dy}{dx}$ if $\sin y = y \cos 2x$

32. $y = \tan^{-1}\left(\frac{1+x}{1-x}\right)$ Find y_1

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33. Find derivative $y = \sqrt{x^2+4} \cdot \sin^2 x \cdot 2^x$

34. Find second order derivative $x = a\cos t$, $y = a \sin t$

35. If $y = \sin^{-1} x$ find y^{II}

36. $\int \frac{\cos 2x}{(\sin x + \cos x)^2} dx$

37. $\int e^{-3x} \sin 3x \, dx$

38. $\int \frac{12}{(4x-5)^3} + \frac{6}{3x+2} + 16 e^{4x+3}$

39. If $\int \frac{1}{x^2-2x+5}$

40. $\int \sqrt{25x^2-9} \, dx$

Five MARK Any 7

41. A Tree is growing so that after t years its height increasing at a rate $\frac{18}{\pi}$ cm per year Assume when tree height is 5 cm
    (i) Find height of tree after 4 years
    (ii) After how many years will be height be 149 cm?

42. $\int \frac{3x+5}{x^2+4x+7}$

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43. $\int \frac{5x-7}{\sqrt{3x-x^2-x}}\,dx$

44. & (i) $\int 2\cos x - 4\sin x + 5\sec^2 x + \operatorname{cosec}^2 x$

(ii) $\int x^2 \cos x$

(iii) $\int \frac{1}{4-x^2}$

45. $y = \frac{\sin^{-1} x}{\sqrt{1-x^2}}$ $(1-x^2)y_2 - 3xy_1 - y = 0$

46. $\sin y = x \sin(a+y)$ $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a}$

47. $y = e^{\tan^{-1} x}$ $(1+x^2)y_{11} + (2x-1)y_1 = 0$

48. Differentiate $(2x+1)^5 (x^3-x+1)^4$

49. Find the derivative $\sin^{-1}\left(\frac{2x}{1+x^2}\right)$ reduct to $\tan^{-1} x$

50. (i) $y = \tan^{-1}\left(\frac{1+x}{1-x}\right)$ y_1

(ii) Find y_{111} if $y = 1/x$

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