



Assignment

Basic Limits

Basic Level

1. $\lim_{x \rightarrow \infty} \frac{(3x-1)(2x+5)}{(x-3)(3x+7)}$ is equal to
(a) 3 (b) 2 (c) -2 (d) 1
2. $\lim_{x \rightarrow \infty} \frac{2x^2+3x+4}{3x^2+3x+4}$ is equal to [SCRA 1996; Rajasthan PET 1987 ; BIT Ranchi 1998; MP PET 1993]
(a) $\frac{2}{3}$ (b) 1 (c) 0 (d) ∞
3. $\lim_{x \rightarrow a} f(x), g(x)$ exists if [Rajasthan PET 1995]
(a) $\lim_{x \rightarrow a} f(x)$ and $\lim_{x \rightarrow a} g(x)$ exists (b) $\lim_{x \rightarrow a} f(x)^{g(x)}$ exists
(c) $\lim_{x \rightarrow a} \frac{f(x)}{g(x)}$ exists (d) $\lim_{x \rightarrow a} f(x)g\left(\frac{1}{x}\right)$ exists
4. $\lim_{x \rightarrow \infty} [x - \sqrt{x^2 + x}] =$ [IIT 1975]
(a) $\frac{1}{2}$ (b) 1 (c) $-\frac{1}{2}$ (d) 0
5. If $\lim_{x \rightarrow a} \frac{f(x)}{g(x)}$ exists then
(a) Both $\lim_{x \rightarrow a} f(x)$ and $\lim_{x \rightarrow a} g(x)$ must exist (b) $\lim_{x \rightarrow a} f(x)$ not exist but $\lim_{x \rightarrow a} g(x)$ exists
(c) Neither $\lim_{x \rightarrow a} f(x)$ nor $\lim_{x \rightarrow a} g(x)$ exists (d) $\lim_{x \rightarrow a} f(x)$ exist but $\lim_{x \rightarrow a} g(x)$ does not exist
6. Which of the following statement is not correct
(a) $\lim_{x \rightarrow c} [f(x) + g(x)] = \lim_{x \rightarrow c} f(x) + \lim_{x \rightarrow c} g(x)$ (b) $\lim_{x \rightarrow c} [f(x) - g(x)] = \lim_{x \rightarrow c} f(x) - \lim_{x \rightarrow c} g(x)$
(c) $\lim_{x \rightarrow c} [f(x), g(x)] = \lim_{x \rightarrow c} f(x), \lim_{x \rightarrow c} g(x)$ (d) $\lim_{x \rightarrow c} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow c} f(x)}{\lim_{x \rightarrow c} g(x)}$
7. $\lim_{x \rightarrow 3^-} \frac{|x-3|}{x-3} =$
(a) 1 (b) -1 (c) 0 (d) Does not exist
8. $\lim_{x \rightarrow 3^+} \frac{|x-3|}{x-3} =$
(a) 1 (b) -1 (c) 0 (d) Does not exist
9. If $\lim_{x \rightarrow a} \phi(x) = a^3, a \neq 0$ then $\lim_{x \rightarrow a} \phi\left(\frac{x}{a}\right)$ is equal to
(a) a^2 (b) $\frac{1}{a^2}$ (c) $\frac{1}{a^3}$ (d) a^3



10. If $\lim_{x \rightarrow a} \frac{a^x - x^a}{x^x - a^a} = -1$, then [EAMCET 2003]
 (a) $a = 1$ (b) $a = 0$ (c) $a = e$ (d) None of these
11. $\lim_{x \rightarrow 4} \left[\frac{x^{3/2} - 8}{x - 4} \right] =$ [DCE 1999]
 (a) $\frac{3}{2}$ (b) 3 (c) $\frac{2}{3}$ (d) $\frac{1}{3}$
12. $\lim_{x \rightarrow 0} \left[\frac{\sqrt{a+x} - \sqrt{a-x}}{x} \right] =$ [Karnataka CET 2001; Roorkee 1979; MP PET 1987]
 (a) 1 (b) 0 (c) \sqrt{a} (d) $\frac{1}{\sqrt{a}}$
13. $\lim_{x \rightarrow \infty} \frac{\sqrt{4x^2 + 5x + 8}}{4x + 5}$ is equal to
 (a) $-1/2$ (b) 0 (c) $1/2$ (d) 1
14. $\lim_{x \rightarrow 4} \frac{3 - \sqrt{5+x}}{x-4}$ is equal to [Orissa JEE 1996]
 (a) $1/6$ (b) $-1/6$ (c) 0 (d) 1
15. $\lim_{x \rightarrow \infty} \frac{\sqrt{x^2 - 1}}{2x + 1}$ is equal to [BIT Ranchi 1992]
 (a) 1 (b) 0 (c) -1 (d) $\frac{1}{2}$
16. $\lim_{x \rightarrow 2} \frac{x^2 - 3x + 2}{x^2 + x - 6}$ equals [IIT 1970; IIT 1976]
 (a) $1/5$ (b) $2/5$ (c) 1 (d) 5
17. The value of $\lim_{\theta \rightarrow 0} \left(\frac{\sin \theta / 4}{\theta} \right)$ is
 (a) 0 (b) $\frac{1}{4}$ (c) 1 (d) Note in existence
18. $\lim_{x \rightarrow 0} \frac{x^2 - 2x}{2 \sin x}$ equals [Rajasthan PET 1985]
 (a) 1 (b) -1 (c) 0 (d) None of these
19. $\lim_{x \rightarrow 0} \frac{\sin(2+x) - \sin(2-x)}{x} =$
 (a) $\sin 2$ (b) $2 \sin 2$ (c) $2 \cos 2$ (d) 2
20. $\lim_{n \rightarrow \infty} (3^n + 4^n)^{\frac{1}{n}} =$ [Karnataka CET 2003]
 (a) 3 (b) 4 (c) ∞ (d) e
21. True statement for $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{2+3x} - \sqrt{2-3x}}$ is [Ranchi BIT 1982; Haryana 1996]
 (a) Does not exist (b) Lies between 0 and $\frac{1}{2}$ (c) Lies between $\frac{1}{2}$ and 1
22. $\lim_{x \rightarrow 1} \frac{(2x-3)(\sqrt{x}-1)}{2x^2+x-3} =$ [IIT 1977]
 (a) $-\frac{1}{10}$ (b) $\frac{1}{10}$ (c) $-\frac{1}{8}$ (d) None of these
23. $\lim_{x \rightarrow \infty} (\sqrt{x^2 + 8x + 3} - \sqrt{x^2 + 4x + 3}) =$ [MP PET 1997; Rajasthan PET 1995]



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- (a) 0 (b) ∞ (c) 2 (d) $\frac{1}{2}$
24. $\lim_{x \rightarrow 0} \left(\frac{x^o}{\sin x^o} \right)$ equals [AMU 1991]
- (a) 1 (b) $\frac{\pi}{180}$ (c) $\frac{180}{\pi}$ (d) None of these

Advance Level

25. $\lim_{n \rightarrow \infty} \left[\frac{1^3 + 2^3 + 3^3 + \dots + n^3}{n^4} \right] =$
- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) None of these
26. $\lim_{n \rightarrow \infty} \left[\frac{1}{n} + \frac{1}{n+1} + \frac{1}{n+2} + \dots + \frac{1}{3n} \right] =$ [Karnataka CET 1999]
- (a) 0 (b) $\log_e 4$ (c) $\log_e 3$ (d) $\log_e 2$
27. $\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{k}{n^2 + k^2} =$ [Roorkee 1999]
- (a) $\left(\frac{1}{2} \right) \log 2$ (b) $\log 2$ (c) $\frac{\pi}{4}$ (d) $\frac{\pi}{2}$
28. The $\lim_{x \rightarrow 0} (\cos x)^{\cot x}$ is [Rajasthan PET 1999]
- (a) 0 (b) 1 (c) $\frac{1}{3}$ (d) $\frac{2}{3}$
29. $\lim_{x \rightarrow 0} \frac{x \tan 2x - 2x \tan x}{(1 - \cos 2x)^2} =$ [IIT 1999]
- (a) 2 (b) -2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$
30. If $f(x) = \sqrt{\frac{x - \sin x}{x + \cos^2 x}}$, then $\lim_{x \rightarrow \infty} f(x)$ is [DCE 2000; EAMCET 1997]
- (a) 0 (b) ∞ (c) 1 (d) Not exist
31. If $f(x) = \begin{cases} x & ; x < 0 \\ 1 & ; x = 0 \\ x^2 & ; x > 0 \end{cases}$, then, $\lim_{x \rightarrow 0} f(x) =$ [DCE 2000]
- (a) 0 (b) 1 (c) 2 (d) Does not exist
32. If $f(x) = \begin{cases} \sin x & , x \neq n\pi \\ 0 & , \text{other wise} \end{cases}, n \in Z$ $g(x) = \begin{cases} x^2 + 1 & , x \neq 0, 2 \\ 4 & , x = 0 \\ 5 & , x = 2 \end{cases}$, then $\lim_{x \rightarrow 0} g\{f(x)\} =$ [Karnataka CET 2000]
- (a) 1 (b) 0 (c) $\frac{1}{2}$ (d) $\frac{1}{4}$
33. $\lim_{n \rightarrow \infty} \frac{1^p + 2^p + 3^p + \dots + n^p}{n^{p+1}} =$ [AIEEE 2002]
- (a) $\frac{1}{p+1}$ (b) $\frac{1}{1-p}$ (c) $\frac{1}{p} - \frac{1}{(p-1)}$ (d) $\frac{1}{p+2}$

34. $\lim_{n \rightarrow \infty} \frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \dots + \frac{1}{2^n}$ equals [Rajasthan PET 1996]
 (a) 2 (b) -1 (c) 1 (d) 3
35. $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{\sin^{-1} x} =$
 (a) 2 (b) 1 (c) -1 (d) None of these
36. $\lim_{x \rightarrow 0} \cos \frac{1}{x}$ [UPSEAT 2002]
 (a) Is continuous at $x = 0$ (b) Differentiable at $x = 0$ (c) Does not exist (d) None of these
37. If $x_n = \frac{1-2+3-4+5-6+\dots-2n}{\sqrt{n^2+1} + \sqrt{4n^2-1}}$, then $\lim_{n \rightarrow \infty} x_n$ is equal to
 (a) $\frac{1}{3}$ (b) $-\frac{1}{3}$ (c) $\frac{2}{3}$ (d) 1
38. $\lim_{n \rightarrow \infty} \left[\frac{1}{n} + \frac{1}{\sqrt{n^2+n}} + \frac{1}{\sqrt{n^2+2n}} + \dots + \frac{1}{\sqrt{n^2+(n-1)n}} \right]$ is equal to [Rajasthan PET 2000]
 (a) $2+2\sqrt{2}$ (b) $2\sqrt{2}-2$ (c) $2\sqrt{2}$ (d) 2
39. $\lim_{n \rightarrow \infty} \frac{1}{1^3+n^3} + \frac{4}{2^3+n^3} + \dots + \frac{1}{2n}$ is equal to [Rajasthan PET 1995]
 (a) $\frac{1}{3} \log_e 3$ (b) $\frac{1}{3} \log_e 2$ (c) $\frac{1}{3} \log_e \frac{1}{3}$ (d) None of these
40. The value of $\lim_{n \rightarrow \infty} \left[\frac{n}{1+n^2} + \frac{n}{4+n^2} + \frac{n}{9+n^2} + \dots + \frac{1}{2n} \right]$ is equal to
 (a) e (b) $\frac{1}{e}$ (c) $\frac{\pi}{4}$ (d) $\frac{4}{\pi}$
41. $\lim_{x \rightarrow \infty} \frac{x^n}{e^x} = 0$ for
 (a) No value of n (b) n is any whole number (c) $n = 0$ only (d) $n = 2$ only

Exponential and Logarithmic Limits

Basic Level

42. $\lim_{x \rightarrow 0} \left[\tan \left(\frac{\pi}{4} + x \right) \right]^{1/x}$ is equal to [Rajasthan PET 2001]
 (a) e^{-1} (b) e (c) e^2 (d) \sqrt{e}
43. $\lim_{x \rightarrow 0} \left(\frac{3^x - 1}{x} \right)$ equals [Rajasthan PET 1998]
 (a) $\log 3$ (b) $3 \log 3$ (c) $2 \log 3$ (d) None of these
44. $\lim_{x \rightarrow 0} \frac{\cos(\sin x) - 1}{x^2} =$ [Orissa JEE 2003]
 (a) 1 (b) -1 (c) 1/2 (d) -1/2
45. $\lim_{x \rightarrow 0} \frac{e^{1/x}}{\frac{1}{1+x} e^x} =$ [DCE 1999]
 (a) 0 (b) 1 (c) Does not exist (d) None of these

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46. $\lim_{x \rightarrow 0} \frac{a^{\sin x} - 1}{b^{\sin x} - 1} =$ [Karnataka CET 2000]
 (a) $\frac{a}{b}$ (b) $\frac{b}{a}$ (c) $\frac{\log a}{\log b}$ (d) $\frac{\log b}{\log a}$
47. $\lim_{x \rightarrow 0} \left(\frac{e^x - 1}{x} \right) =$ [Karnataka CET 2001]
 (a) $\frac{1}{2}$ (b) ∞ (c) 1 (d) 0
48. $\lim_{x \rightarrow \infty} \left(\frac{x+3}{x+1} \right)^{x+1} =$ [Rajasthan PET 2003]
 (a) e^2 (b) e^3 (c) e (d) e^{-1}
49. $\lim_{x \rightarrow 0} (1 - ax)^{\frac{1}{x}} =$ [Karnataka CET 2003]
 (a) e (b) e^{-a} (c) 1 (d) e^a

Advance Level

50. $\lim_{x \rightarrow \infty} \left(\frac{x-3}{x+2} \right)^x$ is equal to [IIT 2000]
 (a) e (b) e^{-1} (c) e^{-5} (d) e^5
51. $\lim_{x \rightarrow 0} \left(\frac{1+5x^2}{1+3x^2} \right)^{1/x^2}$ is [IIT 1996]
 (a) e^2 (b) e (c) e^{-1} (d) None of these
52. The value of $\lim_{x \rightarrow \infty} \left(\frac{x^2 - 2x + 1}{x^2 - 4x + 2} \right)^x$ is equal to
 (a) e^2 (b) e^{-2} (c) e^6 (d) None of these
53. $\lim_{x \rightarrow \infty} \left[1 + \frac{1}{mx} \right]^x$ equal to [Haryana CEE 1998]
 (a) $e^{1/m}$ (b) $e^{-1/m}$ (c) e^m (d) m^e
54. $\lim_{x \rightarrow \infty} \left(\frac{x^2 + 5x + 3}{x^2 + x + 3} \right)^x =$ [AIEEE 2002]
 (a) e^4 (b) e^2 (c) e^3 (d) e
55. $\lim_{x \rightarrow 0} \frac{x \cdot 2^x - x}{1 - \cos x}$ is equal to [IIT 1980; BIT Ranchi 1983; Rajasthan PET 1999, 2001]
 (a) $\log 2$ (b) $\log 4$ (c) 0 (d) None of these
56. $\lim_{x \rightarrow 0} \left(\frac{a^x - b^x}{x} \right) =$ [EAMCET 1988; Rajasthan PET 1995]

- (a) $\log\left(\frac{b}{a}\right)$ (b) $\log\left(\frac{a}{b}\right)$ (c) $\frac{a}{b}$ (d) $\log a^b$

57. $\lim_{x \rightarrow \infty} \frac{\log x^n - [x]}{[x]}$, $n \in N$, ($[x]$ denotes greatest integer less than or equal to x) [AIEEE 2002]

- (a) Has value -1 (b) Has value 0 (c) Has value 1 (d) Does not exist

Trigonometric Limits

Basic Level

58. $\lim_{x \rightarrow 0} \frac{\sin(\pi \cos^2 x)}{x^2} =$ [MP PET 2002; UPSEAT 2001; IIT Screening 2001]

- (a) $-\pi$ (b) π (c) $\frac{\pi}{2}$ (d) 1

59. $\lim_{x \rightarrow 0} \left\{ \frac{\sin x - x + \frac{x^3}{6}}{x^5} \right\} =$ [MNR 1985; MNR 1986]

- (a) $\frac{1}{120}$ (b) $-\frac{1}{120}$ (c) $\frac{1}{20}$ (d) None of these

60. $\lim_{x \rightarrow 0} \frac{\sqrt{\frac{1}{2}(1 - \cos 2x)}}{x} =$ [Rajasthan PET 2001; AIEEE 2002]

- (a) 1 (b) -1 (c) 0 (d) Does not exist

61. $\lim_{x \rightarrow \pi/4} \frac{\sqrt{2} \cos x - 1}{\cot x - 1} =$ [BIT Ranchi 1989; IIT 1990]

- (a) $\frac{1}{\sqrt{2}}$ (b) $\frac{1}{2}$ (c) $\frac{1}{2\sqrt{2}}$ (d) 1

62. $\lim_{x \rightarrow a} \frac{\cos x - \cos a}{\cot x - \cot a} =$ [BIT Ranchi 1987]

- (a) $\frac{1}{2} \sin^3 a$ (b) $\frac{1}{2} \operatorname{cosec}^2 a$ (c) $\sin^3 a$ (d) $\operatorname{cosec}^3 a$

Advance Level

63. $\lim_{x \rightarrow \infty} \sqrt{\frac{x + \sin x}{x - \cos x}} =$ [Roorkee 1994]

- (a) 0 (b) 1 (c) -1 (d) None of these

64. The value of $\lim_{n \rightarrow \infty} \cos\left(\frac{x}{2}\right) \cos\left(\frac{x}{4}\right) \cos\left(\frac{x}{8}\right) \dots \cos\left(\frac{x}{2^n}\right)$ is

- (a) 1 (b) $\frac{\sin x}{x}$ (c) $\frac{x}{\sin x}$ (d) None of these

65. If x is a real number in $[0,1]$, then the value of $\lim_{m \rightarrow \infty} \lim_{n \rightarrow \infty} [1 + \cos^{2m}(n! \pi x)]$ is given by

- (a) 2 or 1 according as x is rational or irrational (b) 1 or 2 according as x is rational or irrational
(c) 1 for all x (d) 2 or 1 for all x

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66. $\lim_{x \rightarrow 0} \frac{1 - \cos 5x}{2^x - 3^x}$ is equal to
 (a) 0 (b) 1 (c) 5 (d) None of these
67. If $\lim_{x \rightarrow 0} \frac{x^n - \sin x^n}{x - \sin^n x}$ is non zero definite, then n must be
 (a) 1 (b) 2 (c) 3 (d) None of these
68. The values of a and b such that $\lim_{x \rightarrow 0} \frac{x(1 + a \cos x) - b \sin x}{x^3} = 1$, are
 (a) $\frac{5}{2}, \frac{3}{2}$ (b) $\frac{5}{2}, -\frac{3}{2}$ (c) $-\frac{5}{2}, -\frac{3}{2}$ (d) None of these
69. $\lim_{h \rightarrow 0} \frac{2 \left[\sqrt{3} \sin \left(\frac{\pi}{6} + h \right) - \cos \left(\frac{\pi}{6} + h \right) \right]}{\sqrt{3}h(\sqrt{3} \cos h - \sin h)} =$ [BIT Ranchi 1987]
 (a) $-\frac{2}{3}$ (b) $-\frac{3}{4}$ (c) $-2\sqrt{3}$ (d) $\frac{4}{3}$
70. If $f(x) = \int \frac{2 \sin x - \sin 2x}{x^3} dx$, then $\lim_{x \rightarrow 0} f'(x)$ equals [IIT Screening 1997]
 (a) 0 (b) 1 (c) -1 (d) 1/2

L'- Hospital Rule

Basic Level

71. $\lim_{x \rightarrow 0} \frac{x}{\tan^{-1}(2x)}$ is equal to [IIT 1992; Rajasthan PET 2001]
 (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) None of these
72. $\lim_{x \rightarrow 0} \frac{e^{\tan x} - e^x}{\tan x - x}$ is equal to [Rajasthan PET 2001]
 (a) 0 (b) 1 (c) e (d) $\frac{1}{e}$
73. $\lim_{x \rightarrow \pi/2} (\sec x - \tan x)$ equals [Rajasthan PET 1998]
 (a) 0 (b) 1 (c) -1 (d) None of these
74. $\lim_{x \rightarrow 0} \frac{2 \sin^2 3x}{x^2} =$ [Roorkee 1982; DCE 1999]
 (a) 0 (b) 1 (c) 18 (d) 36
75. $\lim_{x \rightarrow 0} \frac{\sin 2x}{x} =$ [MNR 1990; UPSEAT 2000]
 (a) 0 (b) 1 (c) 1/2 (d) 2
76. If $f(1) = 1$ and $f'(1) = 4$, then the value of $\lim_{x \rightarrow 1} \frac{\sqrt{f(x)} - 1}{\sqrt{x} - 1}$ is [DCE 2001]
 (a) 9 (b) 4 (c) 12 (d) 1
77. $\lim_{x \rightarrow 0} \frac{\log_e(1+x)}{3^x - 1} =$ [MP PET 2002]
 (a) $\log_e 3$ (b) 0 (c) 1 (d) $\log_3 e$
78. $\lim_{x \rightarrow 0} \frac{e^x - e^{-x}}{\sin x} =$ [Haryana CEE 2002]
 (a) 0 (b) 1 (c) 2 (d) Non existent

79. $\lim_{x \rightarrow -2} \frac{\sin^{-1}(x+2)}{x^2+2x} =$ [Orissa JEE 2002]
 (a) 0 (b) ∞ (c) $-\frac{1}{2}$ (d) None of these
80. $\lim_{x \rightarrow a} \frac{(x^{-1} - a^{-1})}{x - a} =$ [MP PET 1994]
 (a) $\frac{1}{a}$ (b) $-\frac{1}{a}$ (c) $\frac{1}{a^2}$ (d) $-\frac{1}{a^2}$
81. $\lim_{x \rightarrow 1} \frac{\log x}{x-1}$ is equal to [Rajasthan PET 1996; MP PET 1996]
 (a) 1 (b) 0 (c) -1 (d) 1/2
82. $\lim_{x \rightarrow 1} \frac{1-x^{-1/3}}{1-x^{-2/3}} =$
 (a) $\frac{1}{3}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) $-\frac{2}{3}$

Advance Level

83. The value of $\lim_{x \rightarrow 0} \frac{x \cos x - \log(1+x)}{x^2}$ is [Rajasthan PET 1999]
 (a) $\frac{1}{2}$ (b) 0 (c) 1 (d) None of these
84. $\lim_{x \rightarrow \frac{\pi}{4}} \left(\frac{1 - \tan x}{1 - \sqrt{2} \sin x} \right)$ equals [SCRA 1999]
 (a) 0 (b) 1 (c) -2 (d) 2
85. $\lim_{x \rightarrow 0} \frac{2^x - 1}{\sqrt{1+x} - 1}$ equals [Karnataka CET 1999, IIT 1983]
 (a) $\log 2$ (b) $\log 4$ (c) $\log 3$ (d) None of these
86. $\lim_{x \rightarrow 0} \left[\frac{\sin(x+a) + \sin(a-x) - 2 \sin a}{x \sin x} \right]$ is equal to [UPSEAT 1998]
 (a) $\sin a$ (b) $-\sin a$ (c) 1 (d) 0
87. $\lim_{x \rightarrow \pi/2} \frac{\int_{\pi/2}^x t dt}{\sin(2x - \pi)}$ is equal to [MP PET 1998]
 (a) ∞ (b) $\frac{\pi}{2}$ (c) $\frac{\pi}{4}$ (d) $\frac{\pi}{8}$
88. $\lim_{y \rightarrow 0} \frac{(x+y) \sec(x+y) - x \sec x}{y} =$
 (a) $\sec x(x \tan x + 1)$ (b) $x \tan x + \sec x$ (c) $x \sec x + \tan x$ (d) None of these
89. $\lim_{x \rightarrow \frac{\pi}{3}} \frac{\sin\left(\frac{\pi}{3} - x\right)}{2 \cos x - 1}$ is equal to [AMU 1991]
 (a) $\frac{1}{2}$ (b) $\frac{1}{\sqrt{3}}$ (c) $\sqrt{3}$ (d) $\frac{2}{\sqrt{3}}$
90. $\lim_{x \rightarrow 0} \frac{e^{x^2} - \cos x}{x^2}$ is equal to [AMU 1990]

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(a) $\frac{3}{2}$

(b) $\frac{1}{2}$

(c) $\frac{2}{3}$

(d) None of these

91. $\lim_{x \rightarrow 0} \frac{x \cos x - \sin x}{x^2 \sin x}$ equals

[SCRA 1999]

(a) $\frac{1}{3}$

(b) $-\frac{1}{3}$

(c) 3

(d) -3



Answer Sheet

Assignment (Basic & Advance Level)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
b	a	a	c	a	d	b	a	d	a	b	d	c	b	d	a	b	b	c	b
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
b	a	c	a	c	c	a	b	c	c	d	a	a	c	b	c	b	b	b	c
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
b	c	a	d	d	c	c	a	b	c	a	a	a	a	b	b	a	b	a	d
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
b	c	b	b	a	a	a	c	d	b	c	b	a	c	d	b	d	c	c	d
81	82	83	84	85	86	87	88	89	90	91									
a	b	a	d	b	b	c	a	b	a	b									

