PRACTICE EXERCISE

SINGLE CORRECT CHOICE TYPE QUESTIONS

This section contains Single Correct Choice Type Questions. Each question has four choices (A), (B), (C) and (D), out of which ONLY ONE is correct.

1. If $ax^2+bx+c=0$, $a\neq 0$, then

(A) $x=-\dfrac{b\pm\sqrt{b^2-4ac}}{2}$ (B) $x=-\dfrac{b\pm\sqrt{b^2-4ac}}{4}$

(C) $x=-\dfrac{b\pm\sqrt{b^2-4ac}}{2a}$ (D) $x=-\dfrac{b\pm\sqrt{b^2-4ac}}{4a}$

2. $2^x3^y=72$, then

(A) $x=2$, $y=3$ (B) $x=3$, $y=2$
(C) $x=-2$, $y=-3$ (D) $x=-3$, $y=-2$

3. $\log_e x+\log_e y=$

(A) $\log_e(x+y)$ (B) $\log_e(xy)$

(C) $\log_e\left(\dfrac{x}{y}\right)$ (D) $\log_e\left(\dfrac{y}{x}\right)$

4. If $\log_e x+\log_e y=2\log_e z$, then

(A) $2z=x+y$ (B) $z=2x+2y$

(C) $z=xy$ (D) $z=\sqrt{xy}$

5. $\log_e x=k\log_{10}(x^2)$, then k equals

(A) 2.303 (B) 4.606
(C) 1.151 (D) 3.303

6. If $\log_e(x^4)=k\log_{10}x$, then k equals

(A) 2.303 (B) 4.606
(C) 9.212 (D) 13.818

7. For $x\ll 1$, the value of $(1+x)^n$ is

(A) $1-nx$ (B) $\dfrac{1}{2}(1-nx)$

(C) $1+nx$ (D) $\dfrac{1}{2}(1+nx)$

8. $\log_a x$ equals

(A) $\log_e\left(\dfrac{x}{a}\right)$ (B) $\dfrac{\log_e x}{\log_a e}$

(C) $\dfrac{\log_e x}{\log_e a}$ (D) $\dfrac{\log_x e}{\log_a e}$

9. $\log_2(8)=$

(A) 1 (B) 3
(C) 4 (D) 6

10. $\log_{10}100=$

(A) 1 (B) 2
(C) 3 (D) 4

11. $\log_e(mn)=$

(A) $\log_e m\times\log_e n$ (B) $\log_e m-\log_e n$

(C) $\log_e\left(\dfrac{m}{n}\right)$ (D) $\log_e m-\log_e\left(\dfrac{1}{n}\right)$

12. If $3x^2+8x+5=0$, then

(A) $x=1$ (B) $x=\dfrac{5}{3}$

(C) $x=-1$ (D) $x=-\dfrac{5}{3}$

13. $\log_b a\times\log_a b=$

(A) 0 (B) $\log_a(ab)$

(C) 1 (D) $\log_b(ab)$

14. In $\log_a x$, the value of a must be

(A) between 0 and 1
(B) positive, but not 1
(C) positive but not zero
(D) in some other interval

15. The ratio of area of circle of radius r and surface area of sphere of radius r, is

(A) $\dfrac{1}{4}$ (B) 4

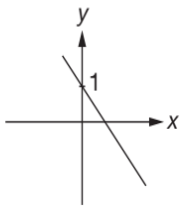
(C) $\dfrac{3}{4r}$ (D) $\dfrac{1}{4r}$

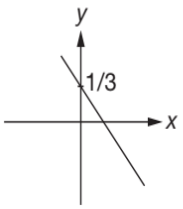
16. An equation of straight line $ay=bx+c$ is given, where a, b and c are constants. The slope of the given straight line is

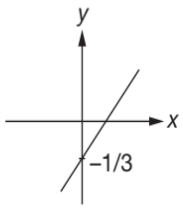
(A) $-\dfrac{a}{b}$ (B) $\dfrac{b}{a}$

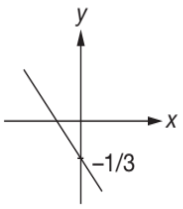
(C) b (D) c

17. Correct graph of $3x+4y+1=0$ is

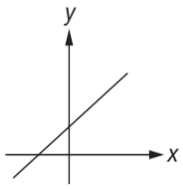
(A) 

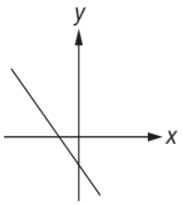
(B) 

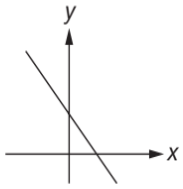
(C) 

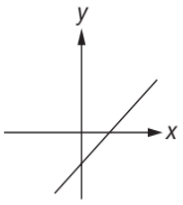
(D) 

18. Graph of $y=2x-3$ is

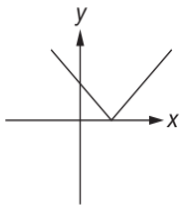
(A) 

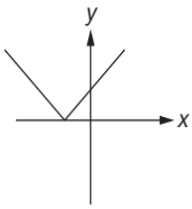
(B) 

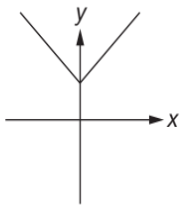
(C) 

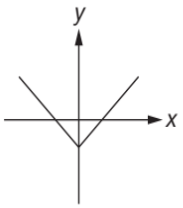
(D) 

19. Correct graph of $y=|3x+4|$ is

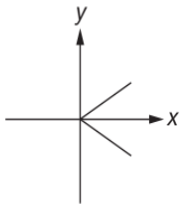
(A) 

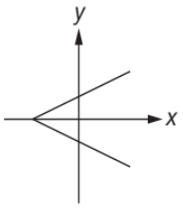
(B) 

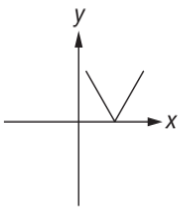
(C) 

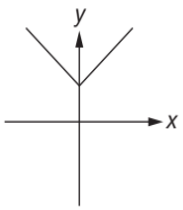
(D) 

20. Correct graph of $|y|=x+1$ is

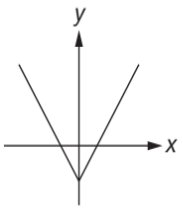
(A) 

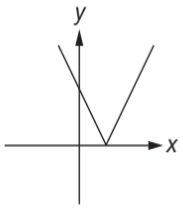
(B) 

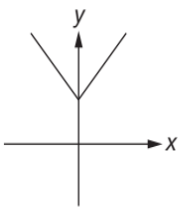
(C) 

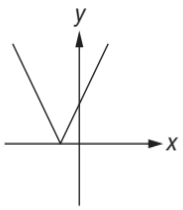
(D) 

21. Graph of $y=|x|+2$ is

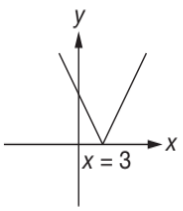
(A) 

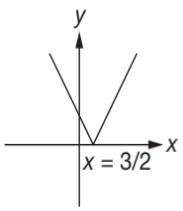
(B) 

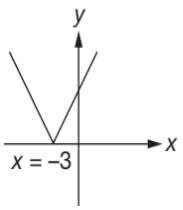
(C) 

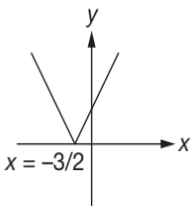
(D) 

22. Graph of $y=|2x-3|$ is

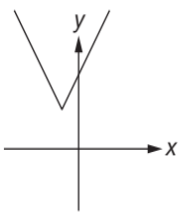
(A) 

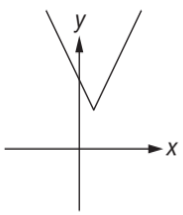
(B) 

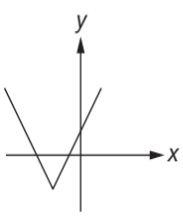
(C) 

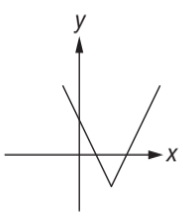
(D) 

23. Graph of $y=|2x+1|+1$ is

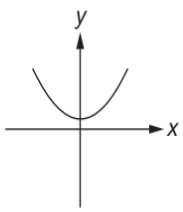
(A) 

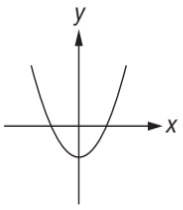
(B) 

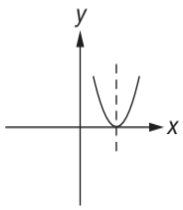
(C) 

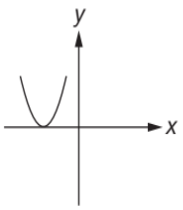
(D) 

24. Correct graph of $y-1=x^2$ is

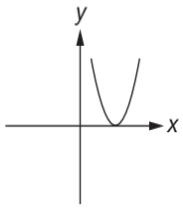
(A) 

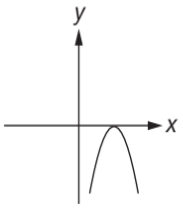
(B) 

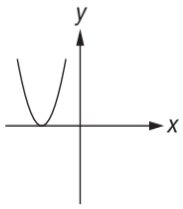
(C) 

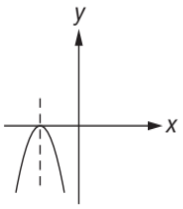
(D) 

25. Correct graph of $y=-(x+2)^2$ is

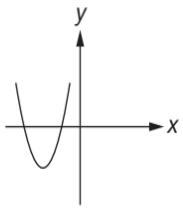
(A) 

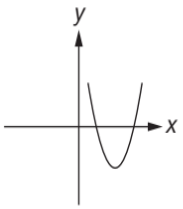
(B) 

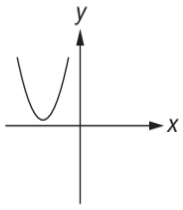
(C) 

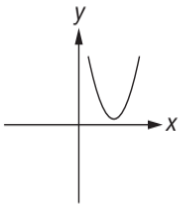
(D) 

26. Correct graph of $y=2x^2+3x+1$ is

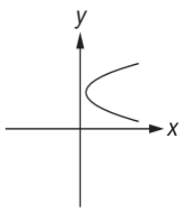
(A) 

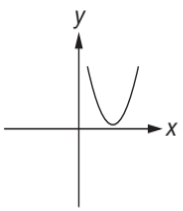
(B) 

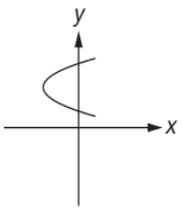
(C) 

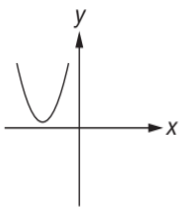
(D) 

27. Graph of $y=2(x-1)^2+2$ is

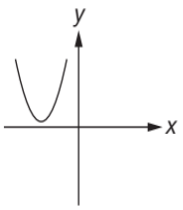
(A) 

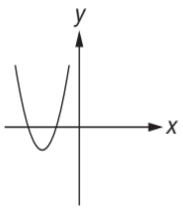
(B) 

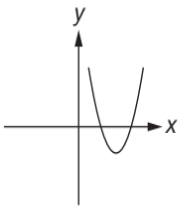
(C) 

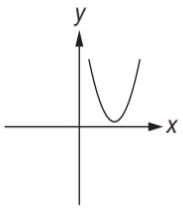
(D) 

28. Graph of $y=3x^2-4x+1$ is

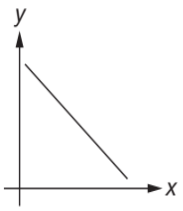
(A) 

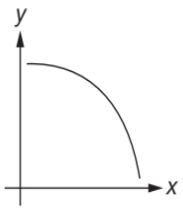
(B) 

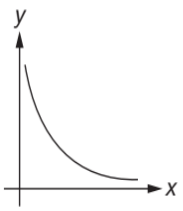
(C) 

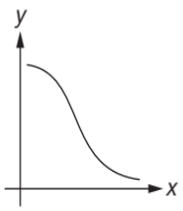
(D) 

29. Graph of $x^2y=2$ is best represented by

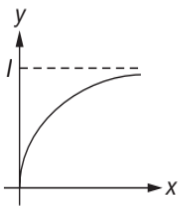
(A) 

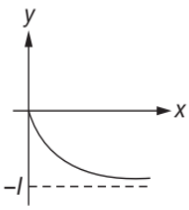
(B) 

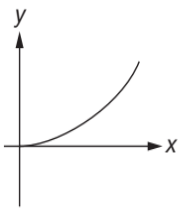
(C) 

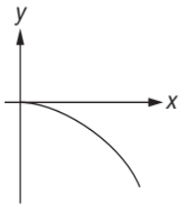
(D) 

30. Graph of $y=1-e^{-x}$ is best represented by (for $x>0$)

(A) 

(B) 

(C) 

(D) 

31. 1 radian is equal to

(A) $\frac{\pi}{180}$degree (B) $\frac{180}{\pi}$degree

(C) $\frac{90}{\pi}$degree (D) $\frac{18}{\pi}$degree

32. $\tan\left(\frac{\pi}{6}\right)=$

(A) $\sqrt{3}$ (B) $\frac{1}{\sqrt{3}}$

(C) $-\sqrt{3}$ (D) $-\frac{1}{\sqrt{3}}$

33. $\tan\left(\frac{3\pi}{4}\right)=$

(A) 1 (B) –1

(C) $\frac{1}{\sqrt{2}}$ (D) $-\frac{1}{\sqrt{2}}$

34. $\tan\left(\frac{3\pi}{2}+\theta\right)=$

(A) $\cot\theta$ (B) $-\tan\theta$

(C) $-\cot\theta$ (D) $\tan\theta$

35. $\cos\left(\frac{3\pi}{2}\right)=$

(A) 1 (B) –1

(C) $\frac{1}{\sqrt{2}}$ (D) zero

36. $\sin(2\theta)=$

(A) $2\sin\theta$ (B) $2\sin\theta\cos\theta$

(C) $\frac{1}{2}\sin\theta\cos\theta$ (D) $\sin\theta\cos\theta$

37. $(1-\cos\theta)$ equals

(A) $2\cos^2\left(\frac{\theta}{2}\right)$ (B) $2\cos^2\theta$

(C) $2\sin^2\theta$ (D) $2\sin^2\left(\frac{\theta}{2}\right)$

38. $(1+\cos\theta)$ equals

(A) $2\cos^2\left(\frac{\theta}{2}\right)$ (B) $2\cos^2\theta$

(C) $2\sin^2\theta$ (D) $2\sin^2\left(\frac{\theta}{2}\right)$

39. $\tan(2\theta)$ equals

(A) $\frac{2\tan\theta}{1-\tan^2\theta}$ (B) $2\tan\theta$

(C) $\frac{\tan\theta}{1-\tan^2\theta}$ (D) $\frac{2\tan\theta}{1+\tan^2\theta}$

40. $\cos^2\theta-\sin^2\theta$ equals

(A) $\cos(2\theta)$ (B) $\sin(2\theta)$

(C) $\tan(2\theta)$ (D) $\cot(2\theta)$

41. $\sin(2\theta)$ equals

(A) $\frac{2\tan\theta}{1+\tan^2\theta}$ (B) $2\sin\theta$

(C) $\frac{\tan\theta}{1+\tan^2\theta}$ (D) $\frac{2\tan\theta}{1-\tan^2\theta}$

42. The value of $\sin(15°)$ is

(A) $\frac{\sqrt{3}-1}{\sqrt{2}}$ (B) $\frac{\sqrt{3}+1}{\sqrt{2}}$

(C) $\frac{\sqrt{3}-1}{2\sqrt{2}}$ (D) $\frac{\sqrt{3}+1}{2\sqrt{2}}$

43. The value of $\sin(75°)$ is

(A) $\frac{\sqrt{3}+1}{\sqrt{2}}$ (B) $\frac{\sqrt{3}+1}{2\sqrt{2}}$

(C) $\frac{\sqrt{3}+1}{4}$ (D) $\frac{\sqrt{3}-1}{4}$

44. The value of $\cos(75°)$ is

(A) $\frac{\sqrt{3}-1}{\sqrt{2}}$ (B) $\frac{\sqrt{3}+1}{\sqrt{2}}$

(C) $\frac{\sqrt{3}-1}{2\sqrt{2}}$ (D) $\frac{\sqrt{3}+1}{2\sqrt{2}}$

45. $(\cos A-\cos B)=$

(A) $2\cos\left(\frac{A+B}{2}\right)\sin\left(\frac{A-B}{2}\right)$

(B) $2\sin\left(\frac{A+B}{2}\right)\cos\left(\frac{A-B}{2}\right)$

(C) $2\sin\left(\frac{A+B}{2}\right)\cos\left(\frac{B-A}{2}\right)$

(D) $2\cos\left(\frac{A+B}{2}\right)\sin\left(\frac{B-A}{2}\right)$

46. $\sin^2(37°)+\sin^2(53°)=$

(A) 0 (B) 1

(C) $\frac{1}{\sqrt{2}}$ (D) $\frac{4}{5}$

47. $\sin\theta$ can never have a value

(A) 1 (B) -1

(C) $\frac{1}{4}$ (D) 2

48. The value of $\sin^2\theta$ always lies between

(A) -1 and 1 (B) -1 and zero

(C) zero and 1 (D) zero and 2

49. $\sin(100\pi)$ is equal to

(A) 1 (B) 100

(C) zero (D) $\frac{1}{2}$

50. $\cos(180-\theta)$ is equal to

(A) $-\cos\theta$ (B) $\cos\theta$

(C) $\sin\theta$ (D) $-\sin\theta$

51. $\lim\limits_{x\to3}\frac{x^2-9}{x-3}=$

(A) 3 (B) 4

(C) 5 (D) 6

52. $\lim\limits_{x\to-5}\frac{x^2-25}{x+5}=$

(A) 10 (B) -10

(C) 0 (D) 5

53. $\frac{d}{dx}\left(x^{\frac{5}{2}}\right)=$

(A) $\frac{5}{2}x^{\frac{5}{2}}$ (B) $\frac{5}{2}x^{\frac{3}{2}}$

(C) $\frac{5}{2}x^{\frac{7}{2}}$ (D) $\frac{2}{7}x^{\frac{7}{2}}$

54. $\frac{d}{dx}(u+v-w)=$

(A) $\left(\frac{du}{dx}\pm\frac{dv}{dx}\right)\frac{dw}{dx}$ (B) $-\frac{du}{dx}+\frac{dv}{dx}-\frac{dw}{dx}$

(C) $\frac{du}{dx}-\frac{dw}{dx}+\frac{dv}{dx}$ (D) $\frac{du}{dx}-\frac{dv}{dx}+\frac{dw}{dx}$

55. $\frac{d}{dx}(uvwz)=$

(A) $uvw\frac{dz}{dx}+uvz\frac{dw}{dx}-uwz\frac{dv}{dx}-vwz\frac{du}{dx}$

(B) $-uvw\frac{dz}{dx}-uvz\frac{dw}{dx}-uwz\frac{dv}{dx}-vwz\frac{du}{dx}$

(C) $uwz\frac{dv}{dx}+vwz\frac{du}{dx}+uvz\frac{dw}{dx}+uvw\frac{dz}{dx}$

(D) $-uvw\frac{dz}{dx}-uvz\frac{dw}{dx}+uwz\frac{dv}{dx}+vwz\frac{du}{dx}$

56. $\frac{d}{dx}\left(\frac{u}{v}\right)=$

(A) $\frac{1}{v}\left(\frac{du}{dx}-\frac{u}{v}\frac{dv}{dx}\right)$ (B) $\frac{1}{u}\left(\frac{v}{u}\frac{du}{dx}-\frac{dv}{dx}\right)$

(C) $\frac{1}{u}\left(\frac{u}{v}\frac{du}{dx}-\frac{dv}{dx}\right)$ (D) $\frac{1}{v}\left(\frac{u}{v}\frac{dv}{dx}-\frac{du}{dx}\right)$

57. $\frac{d}{dx}(u^n)=$

(A) nu^{n-1} (B) $nu^{n-1}\frac{du}{dx}$

(C) zero (D) None of these

58. $\frac{d}{dx}(\sin u)=$

(A) $\cos u$ (B) $-\cos u$

(C) $(\cos u)\frac{du}{dx}$ (D) $-(\cos u)\frac{du}{dx}$

59. $\frac{d}{dx}(\tan x)=$

(A) $\sec x\tan x$ (B) $1+\tan^2 x$

(C) $\sec x$ (D) None of these

60. $\frac{d}{dx}(\sec x)=$

(A) $-\sec x\tan x$ (B) $\sec^2 x\cot x$

(C) $\frac{\sin x}{\cos^2 x}$ (D) $\frac{\cos x}{\sin^2 x}$

61. $\frac{d}{dx}(\operatorname{cosec} x)=$

(A) $-\operatorname{cosec} x\tan x$ (B) $-\frac{\sin x}{\cos^2 x}$

(C) $-\frac{\cos x}{\sin^2 x}$ (D) $\frac{\cos x}{\sin^2 x}$

62. $\frac{d}{dx}(x^5+x^7+x^9)=$

(A) $\frac{x^6}{6}+\frac{x^8}{8}+\frac{x^{10}}{10}$ (B) $5x^4+7x^6+9x^8$

(C) $\frac{x^5}{5}+\frac{x^7}{7}+\frac{x^9}{9}$ (D) $5x^3+7x^5+9x^7$

63. $\frac{d}{dx}(\log_e x)=$

(A) $\frac{1}{e}$ (B) $\frac{1}{\log_e x}$

(C) $\frac{1}{x}$ (D) $x\log_e x-x$

64. $\frac{d}{dx}(e^{2x})=$

(A) e^{2x} (B) e^x

(C) $2e^{2x}$ (D) $2e^x$

65. $\frac{d}{dx}(x\log_e x-x)=$

(A) zero (B) 1

(C) $\log_e x$ (D) $x\log_e x$

66. The tangent to the curve $y^2=4x$ at $(1, 2)$ is inclined to the x-axis at an angle of

(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{3}$

(C) $\frac{\pi}{2}$ (D) $\frac{\pi}{4}$

67. The maximum value of the function $y = \sin x + \cos x$ is

(A) 1 (B) 2

(C) $\sqrt{2}$ (D) $-\sqrt{2}$

68. $\frac{d}{dx}[\log_e(\sin x)]=$

(A) $\cot x$ (B) $-\cot x$

(C) $\tan x$ (D) $-\tan x$

69. $\frac{d}{dx}[\log_e(\cos x)]=$

(A) $\cot x$ (B) $-\cot x$

(C) $\tan x$ (D) $-\tan x$

70. $\frac{d}{dx}[\log_e(\sec x+\tan x)]=$

(A) $\sec x$ (B) $-\sec x$

(C) $\operatorname{cosec} x$ (D) $-\operatorname{cosec} x$

71. $\frac{d}{dx}[\log_e(\operatorname{cosec} x+\cot x)]=$

(A) $-\sec x$ (B) $\sec x$

(C) $-\operatorname{cosec} x$ (D) $\operatorname{cosec} x$

72. $\frac{d}{dx}(x^2\sin x)=$

(A) $x^2\cos x$ (B) $x^2\sin x+x^2\cos x$

(C) $x^2\cos x+2x\cos x$ (D) $x^2\cos x+2x\sin x$

73. The tangent to the curve $y=3x^2-5$ at the point $(2, 7)$ makes an angle θ with the positive x-axis. Then

(A) $\tan\theta=7$ (B) $\tan\theta=10$

(C) $\tan\theta=11$ (D) $\tan\theta=12$

74. $\frac{d}{dx}(\log_e x+\tan x)=$

(A) $\frac{1}{x}+\sec x\tan x$ (B) $x+\sec x\tan x$

(C) $\frac{1}{x}+\sec^2 x$ (D) $\frac{1}{x}-\sec^2 x$

75. $\frac{d}{dx}(e^x\sin x)=$

(A) $e^x\cos x$ (B) $e^x(\cos x+\sin x)$

(C) $-e^x\cos x$ (D) $e^x(\sin x-\cos x)$

76. $\frac{d}{dx}(x\log_e x)=$

(A) 1 (B) $1+\log_e x$

(C) $1-\log_e x$ (D) $\log_e x$

77. $\frac{d}{dx}(e^x+6^x)=$

(A) $e^{x+6}\log_e 6$ (B) $6^{x+e}\log_6 e$

(C) $e^x\log_e 6$ (D) $e^x+6^x\log_e 6$

78. $\frac{d}{dx}\left(\frac{1}{x}+\tan x+x^2+\log_e x\right)=$

(A) $-\frac{1}{x^2}+\sec^2 x+2x+\frac{1}{x}$

(B) $\frac{1}{x^2}-\sec^2 x-2x+\frac{1}{x}$

(C) $-\frac{1}{x^2}-\sec^2 x+2x-\frac{1}{x}$

(D) $-\frac{1}{x^2}+\sec x\tan x+2x+\frac{1}{x}$

79. $\frac{d}{dx}\left(\frac{\tan x+\cot x}{x}\right)=$

(A) $\frac{(\sec^2 x-\operatorname{cosec}^2 x)}{x}$

(B) $\left(\frac{\sec^2 x-\operatorname{cosec}^2 x}{x}\right)-\left(\frac{\tan x+\cot x}{x^2}\right)$

(C) $-\left(\frac{\tan x+\cot x}{x^2}\right)$

(D) None of these

80. $\frac{d}{dx}(e^x\tan x)=$

(A) $e^x\sec x\tan x$ (B) $e^x\sec^2 x$

(C) $e^x(\tan x+\sec^2 x)$ (D) $e^x(\tan x-\sec^2 x)$

81. $\frac{d}{dx}\left(2x^5-4x^2-\frac{1}{\sqrt{x}}\right)=$

(A) $2x^5-8x-\frac{1}{2\sqrt{x}}$ (B) $10x^4-8x-\sqrt{x}$

(C) $10x^4-8x+\frac{1}{2x\sqrt{x}}$ (D) $10x^4-8x-\frac{1}{2\sqrt{x}}$

82. $\frac{d}{dx}\left(\frac{3x^2+1}{2x-1}\right)=$

(A) $\frac{6x}{2x-1}$

(B) $\frac{(2x-1)(6x+1)-(3x^2+1)2x}{(2x-1)^2}$

(C) $\frac{12x^3-6x^2-8x}{4x^2-4x+1}$

(D) None of these

83. $\frac{d}{dx}(e^x\log_e x)=$

(A) $e^x\left(\log_e x+\frac{1}{x}\right)$ (B) $\frac{e^x}{x}$

(C) $e^x\log_e x+1$ (D) None of these

84. $y=\sin x+x^4$

(A) $\frac{dy}{dx}=-\cos x+4x^3$ (B) $\frac{dy}{dx}=\sin x+4x^3$

(C) $\frac{d^2y}{dx^2}=-\sin x+12x^2$ (D) $\frac{d^2y}{dx^2}=-\cos x+6x^2$

85. $y=x\log_e x$

(A) $\frac{dy}{dx}=1$ (B) $\frac{dy}{dx}=\log_e x$

(C) $\frac{d^2y}{dx^2}=\frac{1}{x}$ (D) $\frac{d^2y}{dx^2}=x$

86. $y=e^x\sin x$

(A) $\frac{dy}{dx}=e^x(\cos x-\sin x)$ (B) $\frac{dy}{dx}=e^x\cos x$

(C) $\frac{d^2y}{dx^2}=2e^x\sin x$ (D) $\frac{d^2y}{dx^2}=2e^x\cos x$

87. $\frac{d}{dx}\sqrt{\tan x}$

(A) $2\sec^2 x(\tan x)^{-1/2}$ (B) $\frac{1}{2}\sec^2 x(\tan x)^{-1/2}$

(C) $\frac{1}{2}(\tan x)^{-1/2}$ (D) $2(\tan x)^{-1/2}$

88. $\frac{d}{dx}\sin(\log x)$

(A) $\cos(\log x)$ (B) $\log(\cos x)$

(C) $x\cos(\log x)$ (D) $\frac{\cos(\log x)}{x}$

89. $\frac{d}{dx}\left(\sqrt{2x^2+1}\right)$

(A) $2x(2x^2+1)^{1/2}$ (B) $2x(2x^2+1)^{-1/2}$

(C) $(2x^2+1)^{1/2}$ (D) $(2x^2+1)^{-1/2}$

90. $\frac{d}{dx}\left(e^{\sqrt{2x}}\right)$

(A) $\frac{e^{\sqrt{2x}}}{\sqrt{2x}}$ (B) $\sqrt{2x}e^{\sqrt{2x}}$

(C) $e^{\sqrt{2x}}$ (D) $e^{(2x)^{-1/2}}$

91. $\frac{d}{dx}(x^4-2\sin x+3\cos x)$

(A) $4x^3-2\cos x+3\sin x$ (B) $3x^2+2\cos x+3\sin x$

(C) $4x^3+2\cos x-3\sin x$ (D) $4x^3-2\cos x-3\sin x$

92. $\frac{d}{dx}(x^2\sin x\log x)$

(A) $2x\sin x\log x+x^2\cos x\log x+x\sin x$

(B) $x^2\sin x\log x+2x\cos x\log x+x\sin x$

(C) $2x\sin x\log x+x^2\cos x\log x+\sin x$

(D) None of these

93. $\frac{d}{dx}\frac{(x^2+1)}{x+1}$

(A) $\frac{x^2+2x-1}{(x+1)^2}$ (B) $\frac{x^2-2x+1}{(x+1)^2}$

(C) $\frac{x^2+2x-1}{x+1}$ (D) $\frac{x^2+2x+1}{(x+1)^2}$

94. $xy=c^2$, then $\frac{dy}{dx}$

(A) $\frac{x}{y}$ (B) $\frac{y}{x}$

(C) $-\frac{x}{y}$ (D) $-\frac{y}{x}$

95. If $x=at^2$ and $y=2at$, then $\frac{dy}{dx}$

(A) t (B) $\frac{1}{t}$

(C) 1 (D) None of these

96. If $y=\sin^3 x-3\sec^2 x$, then $\frac{dy}{dx}$ at $x=\frac{\pi}{3}$ is

(A) $\frac{9-96\sqrt{3}}{4}$ (B) $\frac{9-86\sqrt{3}}{4}$

(C) $\frac{9-76\sqrt{3}}{2}$ (D) None of these

97. If $y=\sin(2x^2)$, then $\frac{dy}{dx}$ is

(A) $4x\cos(2x^2)$ (B) $2\cos(2x^2)$

(C) $4\cos(2x^2)$ (D) $-4\cos(2x^2)$

98. The minimum value of $y=2x^2-x+1$ is

(A) $-\frac{3}{8}$ (B) $-\frac{5}{8}$

(C) $-\frac{7}{8}$ (D) $-\frac{9}{8}$

99. If $y=\sin^2 x-2\tan^2 x$, then $\frac{dy}{dx}$ at $x=\frac{\pi}{4}$ is

(A) –11 (B) –7

(C) –13 (D) –15

100. If $y=x^3+2x+1$, then $\frac{dy}{dx}$ at $x=1$ is

(A) 6 (B) 7

(C) 8 (D) 5

101. $y=\frac{1+x}{e^x}$, then $\frac{dy}{dx}$ is equal to

(A) $\frac{x}{e^x}$ (B) $-\frac{x}{e^x}$

(C) $\frac{(x+1)}{e^x}$ (D) None of these

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

(A) $\frac{x}{(x+2)^3}$ (B) $\frac{-x}{(x+2)^3}$

(C) $\frac{1}{(x+2)^3}$ (D) $\frac{-1}{(x+2)^3}$

103. If $y=x^3+2x+1$ then $\frac{dy}{dx}$ at $x=1$ is

(A) 6 (B) 7

(C) 8 (D) 5

104. $y=\frac{1+x}{e^x}$ then $\frac{dy}{dx}$ is equal to

(A) $\frac{x}{e^x}$ (B) $-\frac{x}{e^x}$

(C) $\frac{(x+1)}{e^x}$ (D) None of these

105. $\int \log_e x =$

(A) $\frac{1}{x}$ (B) $\frac{1}{e}$

(C) $x\log_e x-x$ (D) $x\log_e x$

106. $\int x^n dx$ for $n=-1$ is

(A) Not defined (B) $\frac{x^{n+1}}{n+2}$

(C) $\log_e x$ (D) $2\log_e x$

107. $\int(x^5+x^7+x^9)dx =$

(A) $5x^4+7x^6+9x^8$ (B) $\frac{x^5}{5}+\frac{x^7}{7}+\frac{x^9}{9}$

(C) $x^5\left(x+\frac{x^3}{3}+\frac{x^5}{5}\right)$ (D) $\frac{x^6}{6}+\frac{x^8}{8}+\frac{x^{10}}{10}$

108. $\int_a^b 2\frac{dx}{x} =$

(A) $\log_e b - \log_e a$ (B) $2\log_e(b-a)$

(C) $\log_e\left(\frac{b^2}{a^2}\right)$ (D) $2\log_e\left(\frac{a}{b}\right)$

109. $\int_0^x \frac{dx}{2+3x} =$

(A) $\frac{1}{3}\log_e(2+3x)$ (B) $\frac{1}{3}\log(3+2x)$

(C) $\frac{1}{3}\log_e\left(\frac{2+3x}{2}\right)$ (D) $\frac{1}{3}\log_e\left(\frac{2}{2+3x}\right)$

110. $\int 5x^4 dx =$

(A) $4x^3$ (B) $6x^2$

(C) $20x^3$ (D) x^5

111. $\int \sin(2x)dx =$

(A) $-\cos(2x)$ (B) $-\frac{1}{2}\cos(2x)$

(C) $-\cos x$ (D) None of these

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

(A) $x^3+\frac{1}{x}+2x$ (B) $\frac{x^3}{3}-\frac{1}{x}+2x$

(C) $\frac{x^3}{3}+\frac{1}{x^2}-2x$ (D) $\frac{x^3}{3}-\frac{1}{x^2}+2x$

113. $\int\frac{\text{cosec}^2 x\,dx}{1+\cot x} =$

(A) $-\log|1+\cot x|+C$ (B) $\log|1+\cot x|+C$

(C) $\log|1+\tan x|+C$ (D) $-\log|1+\tan x|+C$

114. Value of $\int_0^1 (3x^2-4x+1)dx$ is

(A) 0 (B) 1

(C) 2 (D) 3

115. The value of $\int_0^{\pi/2} \sin(2\theta)d\theta$ is

(A) 0 (B) 1

(C) –1 (D) 2

116. Value of $\int_3^5 \frac{1}{2x+3}dx$ is

(A) $\ln\left(\frac{13}{9}\right)$ (B) $\frac{1}{2}\ln\left(\frac{13}{9}\right)$

(C) $\frac{1}{2}\ln\left(\frac{15}{9}\right)$ (D) None of these

117. Value of $\int_0^1 \frac{1}{(3-2x)^2}dx$ is

(A) $-\frac{1}{9}$ (B) $-\frac{2}{9}$

(C) $-\frac{4}{9}$ (D) None of these

118. $\int(\sqrt{1+\cos x})dx =$

(A) $\frac{(\sqrt{1+\cos x})^{3/2}}{\frac{3}{2}}+C$ (B) $2\sqrt{2}\cos\frac{x}{2}+C$

(C) $2\sqrt{2}\sin\left(\frac{x}{2}\right)+C$ (D) None of these

119. $\int_0^2 2t\,dt$ is equal to

(A) 0 (B) 4

(C) 2 (D) $\frac{1}{2}$

120. $\int_{\pi/6}^{\pi/2} \sin x\,dx$ is equal to

(A) $\frac{1}{2}$ (B) $\frac{1}{\sqrt{2}}$

(C) $\frac{\sqrt{3}}{2}$ (D) 0

121. $\int \frac{dt}{(6t-1)}$ is equal to

(A) $\frac{1}{6}\log_e(6t-1)+C$ (B) $\log_e(6t-1)+C$

(C) $-\frac{1}{6}\log_e(6t-1)+C$ (D) None of these

122. $\int(4\cos t+t^2)dt$ is equal to

(A) $-4\sin t+\frac{t^3}{3}+C$ (B) $-4\sin t+t^2+C$

(C) $4\sin t+\frac{t^3}{3}+C$ (D) $4\sin t+2t^3+C$

ANSWER KEY–PRACTICE EXERCISE

Single Correct Choice Type Questions

1. C	2. B	3. B	4. D	5. C	6. C	7. C	8. C	9. B	10. B
11. D	12. C, D	13. C	14. B	15. A	16. B	17. D	18. D	19. B	20. B
21. C	22. B	23. A	24. A	25. D	26. A	27. B	28. C	29. C	30. A
31. B	32. B	33. B	34. C	35. D	36. B	37. D	38. A	39. A	40. A
41. A	42. C	43. B	44. C	45. B, C	46. B	47. D	48. C	49. C	50. A
51. D	52. B	53. B	54. C	55. C	56. A	57. B	58. C	59. B	60. C
61. C	62. B	63. C	64. C	65. C	66. D	67. C	68. A	69. D	70. A
71. C	72. D	73. D	74. C	75. B	76. B	77. D	78. A	79. B	80. C
81. C	82. C	83. A	84. C	85. C	86. D	87. B	88. D	89. B	90. A
91. D	92. A	93. A	94. D	95. B	96. A	97. A	98. C	99. D	100. D
101. B	102. B	103. D	104. B	105. C	106. C	107. D	108. C	109. C	110. D
111. B	112. B	113. A	114. A	115. B	116. B	117. B	118. C	119. B	120. C
121. A	122. C								