A.Y. DADABHAI TECHNICAL INSTITUTE

----------TRUSTED TO DELİVER EXCELLENCE----------

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STUDY MATERİAL FOR DDCET EXAM

subject – Maths 2

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Ch. 1 Matrices

1. If $A=\begin{bmatrix}3 & 5\\ 1 & 2\end{bmatrix}$ then $A^T=$ ___ .

A.	$\begin{bmatrix}3 & 1\\ 5 & 2\end{bmatrix}$	B.	$\begin{bmatrix}3 & 5\\ 1 & 2\end{bmatrix}$
C.	$\begin{bmatrix}-3 & -5\\ -1 & -2\end{bmatrix}$	D.	$\begin{bmatrix}-3 & 5\\ 1 & -2\end{bmatrix}$

ANS:-A

2. If $A=\begin{bmatrix}3 & 5\\ -1 & -2\end{bmatrix}$ then $adj(A)=$ ___ .

A.	$\begin{bmatrix}-2 & -5\\ -1 & -3\end{bmatrix}$	B.	$\begin{bmatrix}-2 & -5\\ 1 & 3\end{bmatrix}$
C.	$\begin{bmatrix}2 & 5\\ 1 & 3\end{bmatrix}$	D.	$\begin{bmatrix}2 & -5\\ 1 & -3\end{bmatrix}$

ANS:-B

3. If order of matrix is 2×3 then it has ___ elements.

A.	2	B.	3
C.	6	D.	12

ANS:- C

4. Order of the matrix $A=\begin{bmatrix}5 & 3 & -1\\ 1 & 4 & 2\end{bmatrix}$ is ___ .

A.	3x3	B.	3x2
C.	2x2	D.	2x3

ANS:-D

5. If A is non singular matrix then _____.

A.	$A=A^T$	B.	$\lvert A\rvert=0$
C.	$\lvert A\rvert\neq0$	D.	$A=-A^T$

ANS:-C

6. For $A=\begin{bmatrix}4 & 2\\ 1 & 3\end{bmatrix}$, $A+A=$_____.

A.	$\begin{bmatrix}2 & 1\\ 1 & 2\end{bmatrix}$	B.	$\begin{bmatrix}8 & 4\\ 2 & 2\end{bmatrix}$
C.	$\begin{bmatrix}8 & 4\\ 2 & 6\end{bmatrix}$	D.	$\begin{bmatrix}8 & 4\\ 4 & 6\end{bmatrix}$

ANS:-C

7. If $\begin{bmatrix}x & 2\\ 1 & 1\end{bmatrix}=\begin{bmatrix}0 & 2\\ 1 & y\end{bmatrix}$ then $x=$____ and $y=$____.

A.	$x=0$ and $y=1$	B.	$x=1$ and $y=1$
C.	$x=0$ and $y=0$	D.	$x=1$ and $y=0$

ANS:-A

8. If $A=\begin{bmatrix}2 & 1\\ 1 & 0\end{bmatrix}$ and $B=\begin{bmatrix}0 & 3\\ 0 & 1\end{bmatrix}$ then $AB=$___.

A.	$\begin{bmatrix}0 & 0\\ 0 & 0\end{bmatrix}$	B.	$\begin{bmatrix}0 & 7\\ 2 & 0\end{bmatrix}$
C.	$\begin{bmatrix}0 & 0\\ 7 & 0\end{bmatrix}$	D.	$\begin{bmatrix}0 & 7\\ 0 & 3\end{bmatrix}$

ANS:-D

9. If $A=\begin{bmatrix}1 & 2\end{bmatrix}$ and $B=\begin{bmatrix}4\\ 2\end{bmatrix}$ then $AB=$_____.

A.	$\begin{bmatrix}4 & 2\\ 2 & 4\end{bmatrix}$	B.	$\begin{bmatrix}3 & 2\\ 9 & 6\end{bmatrix}$
C.	$\begin{bmatrix}4 & 6\end{bmatrix}$	D.	$\begin{bmatrix}8\end{bmatrix}$

ANS:-D

10. $\begin{bmatrix}2 & 1\\ 1 & 0\end{bmatrix}+\begin{bmatrix}0 & 3\\ 0 & 1\end{bmatrix}=$____

A.	$\begin{bmatrix}2 & 4\\ 1 & 1\end{bmatrix}$	B.	$\begin{bmatrix}2 & 4\\ 0 & 1\end{bmatrix}$
C.	$\begin{bmatrix}2 & 4\\ 1 & 0\end{bmatrix}$	D.	$\begin{bmatrix}2 & 0\\ 1 & 0\end{bmatrix}$

ANS:-A

11. For $A=\begin{bmatrix}1 & -1\\ 0 & 3\end{bmatrix}$, $2A=$_____.

A.	$\begin{bmatrix}1 & -1\\ 0 & 3\end{bmatrix}$	B.	$\begin{bmatrix}1 & -1\\ 2 & 3\end{bmatrix}$
C.	$\begin{bmatrix}2 & -2\\ 0 & 6\end{bmatrix}$	D.	$\begin{bmatrix}2 & 2\\ 4 & 6\end{bmatrix}$

ANS:-C

12. Let be I an identity matrix then $(I)^T=$_____ .

A.	$2I$	B.	A^T
C.	I	D.	0

ANS:-C

13. For any matrix A, $(A^T)^T=$_____ .

A.	A	B.	A^T
C.	I	D.	0

ANS:-A

14. If A is of order 3×2 and B is of order 2×1 then order of matrix AB is _____.

A.	3×3	B.	1×3
C.	3×1	D.	1×2

ANS:-C

15. If $[x \quad 1]=[2 \quad y]$ then x=____, y=____.

A.	2, 1	B.	1, 2
C.	2,2	D.	1,1

ANS:-A

16. $[6 \quad 1]+[2 \quad 5]=$ ___

A.	$[6 \quad 1]$	B.	$[2 \quad 1]$
C.	$[8 \quad 6]$	D.	$[6 \quad 6]$

ANS:-C

17. If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, then Adj(A) = ...

A. $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ B. $\begin{bmatrix} d & b \\ c & a \end{bmatrix}$

C. $\begin{bmatrix} a & -b \\ -c & d \end{bmatrix}$ D. $\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$

ANS:-D

18. If A is a matrix of order 3x4 and B is a matrix of order 3x4, then the order of the matrix A – B is .....

A. 3×4 B. 4×3 C. 3×3 D. 4×4

19. If A is non-singular matrix, then .....

A. $|A| = 0$ **B. $|A| \neq 0$**

C. $A = 0$ D. $A \neq 0$

20. Let $A = \begin{bmatrix} 1 & -1 & 2 \\ 5 & 7 & 3 \\ -2 & -5 & 4 \end{bmatrix}$. What is the Minor of 5?

A. -43 B. -17

C. 14 D. 43

ANS:-A

21. Let $P = \begin{bmatrix} 10 & -11 & 2 \\ 5 & 10 & 3 \\ -2 & -15 & 40 \end{bmatrix}$. Then P^T = ...

A. $\begin{bmatrix} 10 & 5 & -2 \\ -11 & 10 & -15 \\ 2 & 3 & 40 \end{bmatrix}$ B. $\begin{bmatrix} 10 & -11 & 2 \\ 5 & 10 & 3 \\ -2 & -15 & 40 \end{bmatrix}$

C. $\begin{bmatrix} -10 & -5 & 2 \\ 11 & -10 & 15 \\ -2 & -3 & -40 \end{bmatrix}$ D. $\begin{bmatrix} 10 & -5 & 2 \\ -11 & 10 & -15 \\ 2 & 3 & 40 \end{bmatrix}$

ANS:-A

22. Let $R = \begin{bmatrix} 2022 & 2022 \\ 2023 & 2023 \end{bmatrix}$. Then det(R) = ...

A. 2022 B. 2023

C. 0 D. 1

ANS:-C

23. Let $M = \begin{bmatrix} 1 & -1 \\ 2 & -2 \end{bmatrix}$. Then Adj(M) = ...

A. $\begin{bmatrix} -2 & -1 \\ 2 & 1 \end{bmatrix}$ B. $\begin{bmatrix} -2 & 1 \\ -2 & 1 \end{bmatrix}$

C. $\begin{bmatrix} -2 & 1 \\ 2 & 1 \end{bmatrix}$ D. $\begin{bmatrix} -2 & -1 \\ 2 & -1 \end{bmatrix}$

ANS:-B

24. If A is any square matrix and B is inverse matrix of A, then AB is .....

A. Zero matrix **B. Identity matrix**

C. Upper triangular matrix D. Lower triangular matrix

25. If A is any matrix of order 3×3 and I is the identity matrix of order 3×3, then AI = ...

A. I B. Zero matrix

C. A D. None of these

26. What is the order of a matrix [1 2 3 0 0]?

A. 1×5 B. 5×1

C. 1×3 D. 3×1

27. If order of a matrix A is 3×5 and order of a matrix B is 5×4, then order of a matrix AB is …. …

A. 5×5 B. 5×4

C. 3×4 D. 4×3

28. If $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 3$, then $\begin{vmatrix} 4a & 4b \\ 4c & 4d \end{vmatrix}$ = ...

A. 48 B. 16

C. 12 D. 3

ANS:-A

29. If $\begin{vmatrix} 5x & 10 \\ 8 & 7 \end{vmatrix} = -10$, then x = ...

A. 2 B. -2
C. 1 D. 0

ANS:-A

30. If $Y = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$, then Y^2 = ...

A. $\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ B. $\begin{bmatrix} -2 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & -2 \end{bmatrix}$

C. $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$ D. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

ANS:-D

31. If matrix form of the system of linear equations is AX = B, then X = ...

A. $(AB)^{-1}$ B. AB^{-1}
C. $A^{-1}B$ D. $B^{-1}A$

32. Matrix multiplication $[1 \quad -1] \begin{bmatrix} 1 \\ -1 \end{bmatrix}$ = ...

A. 2 B. -2
C. 1 D. 0

ANS:-A

33. If A is singular matrix then _____.

A.	$A = A^T$	B.	$\lvert A \rvert = 0$
C.	$\lvert A \rvert \neq 0$	D.	$A = -A^T$

ANS:-A

34. If $A = \begin{bmatrix} -3 & -5 \\ 1 & 2 \end{bmatrix}$ then $adj(A)$ = ____.

A.	$\begin{bmatrix} 2 & 5 \\ -1 & -3 \end{bmatrix}$	B.	$\begin{bmatrix} -2 & -5 \\ -1 & -3 \end{bmatrix}$
C.	$\begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & -5 \\ 1 & -3 \end{bmatrix}$

ANS:-A

35. If $\begin{bmatrix} x & 2 \\ 1 & -1 \end{bmatrix} = \begin{bmatrix} 3 & 2 \\ 1 & y \end{bmatrix}$ then $x =$ ____ and $y =$ ____.

A.	$x=1$ and $y=1$	B.	$x=3$ and $y=1$
C.	$x=0$ and $y=-1$	D.	$x=3$ and $y=-1$

ANS:-D

36. $[6 \quad 1]+[1 \quad 4] =$ ___

A.	$[6 \quad 1]$	B.	$[7 \quad 5]$
C.	$[5 \quad 3]$	D.	$[2 \quad 1]$

ANS:-B

37. If order of matrix is 4×3 then it has ___ elements.

A.	2	B.	3
C.	6	D.	12

ANS:-D

38. Order of the matrix $A = \begin{bmatrix} -5 & 0 & 1 \\ 1 & 4 & 2 \end{bmatrix}$ is ____.

A.	3x3	B.	3x2
C.	2x2	D.	2x3

ANS:-D

39. If $A = [1 \quad 2]$ and $B = \begin{bmatrix} 4 \\ 0 \end{bmatrix}$ then $AB =$ _____.

A.	$\begin{bmatrix} 4 & 2 \\ 2 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 4 & 0 \end{bmatrix}$
C.	$[4 \quad 1]$	D.	$[4]$

ANS:-D

40. For $A = \begin{bmatrix} 8 & 4 \\ 2 & 6 \end{bmatrix}$, $\frac{1}{2}A =$ _____.

A.	$\begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 8 & 4 \\ 2 & 2 \end{bmatrix}$
C.	$\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 8 & 4 \\ 4 & 6 \end{bmatrix}$

ANS:-C

41. For $A=\begin{bmatrix}2 & 4\\ 2 & 6\end{bmatrix}$, $A^T=$ ___

A.	$\begin{bmatrix}1 & -1\\ 0 & 3\end{bmatrix}$	B.	$\begin{bmatrix}1 & -1\\ 2 & 3\end{bmatrix}$
C.	$\begin{bmatrix}2 & -2\\ -4 & 6\end{bmatrix}$	D.	$\begin{bmatrix}2 & 2\\ 4 & 6\end{bmatrix}$

ANS:-D

42. $\begin{bmatrix}1 & 1\\ 1 & 0\end{bmatrix}+\begin{bmatrix}1 & 3\\ 0 & 1\end{bmatrix}=$ ____

A.	$\begin{bmatrix}2 & 0\\ 1 & 0\end{bmatrix}$	B.	$\begin{bmatrix}2 & 4\\ 0 & 1\end{bmatrix}$
C.	$\begin{bmatrix}2 & 4\\ 1 & 0\end{bmatrix}$	D.	$\begin{bmatrix}2 & 4\\ 1 & 1\end{bmatrix}$

ANS:-D

43. If $A=\begin{bmatrix}2 & 1\\ 0 & 0\end{bmatrix}$ and $B=\begin{bmatrix}0 & 3\\ 0 & 1\end{bmatrix}$ then $AB=$ ___.

A.	$\begin{bmatrix}0 & 0\\ 0 & 0\end{bmatrix}$	B.	$\begin{bmatrix}0 & 7\\ 2 & 0\end{bmatrix}$
C.	$\begin{bmatrix}0 & 7\\ 0 & 0\end{bmatrix}$	D.	$\begin{bmatrix}0 & 7\\ 0 & 3\end{bmatrix}$

ANS:-C

44. Let be I an identity matrix then $(I)^2=$_____ .

A.	$2I$	B.	$-I$
C.	I	D.	0

ANS:-C

45. For non-singular matrix A, $(A^{-1})^{-1}=$_____ .

A.	A	B.	A^T
C.	I	D.	0

ANS:-A

46. If A is of order 4×2 and B is of order 2×3 then order of matrix AB is _____.

A.	3×3	B.	3×4
C.	4×3	D.	2×2

ANS:-C

47. If $[x+1 \quad 1]=[2 \quad y-1]$ then x=____, y=____.

A.	2, 1	B.	1, 2
C.	2,2	D.	1,1

ANS:-B

48. If $A=\begin{bmatrix}-3 & 1\\ 5 & -2\end{bmatrix}$ then $A^T=$ ___.

A.	$\begin{bmatrix}3 & 1\\ 5 & 2\end{bmatrix}$	B.	$\begin{bmatrix}3 & 5\\ 1 & 2\end{bmatrix}$
C.	$\begin{bmatrix}-3 & -5\\ -1 & -2\end{bmatrix}$	D.	$\begin{bmatrix}-3 & 5\\ 1 & -2\end{bmatrix}$

ANS:-D

Ch 2 Differentiation & its Application

1. $\frac{dy}{dx}(e^x) = \_\_\_\_$.

A.	1	B.	0
C.	e^x	D.	$\sin x$

ANS:-C

2. If $f(x) = 4x^2 + 5x + 7$ then $f'(0) = \_\_\_\_$.

A.	12	B.	7
C.	8	D.	5

ANS:-D

3. $y = \sin x$ then $\frac{dy}{dx} = \_\_\_\_$.

A.	$\cos x$	B.	0
C.	$x\cos x + \sin x$	D.	$\sin x$

ANS:-A

4. $x = a\cos\theta + 1, y = a\sin\theta + 1$ then $\frac{dy}{dx} = \_\_\_\_$.

A.	$-\cot\theta$	B.	$a\cot\theta$
C.	$\tan\theta$	D.	$a\tan\theta$

ANS:-A

5. $\frac{d}{dx}(\cot^{-1} x) = \_\_\_$.

A.	$\frac{-1}{1+x^2}$	B.	$\frac{1}{1+x^2}$
C.	$\frac{-1}{1-x^2}$	D.	$\frac{1}{1-x^2}$

ANS:-A

6. $\frac{d}{dx}[\log(\sin x)] = \_\_\_\_$.

A.	$\frac{1}{\sin x}$	B.	$\frac{1}{\cos x}$
C.	$\tan\theta$	D.	$\cot\theta$

ANS:-D

7. $\frac{d}{dx}\left(\frac{1}{11}\right)=$____.

A.	11	B.	0
C.	$\frac{-2}{x}$	D.	$\frac{1}{2x}$

ANS:-B

8. If $f(x)=3^x$ then $f'(0)=$___.

A.	0	B.	$\log 3$
C.	$3\log 3$	D.	4

ANS:-B

9. $\frac{d}{dx}\sin(2x-3)=$_____.

A.	$\sin(2x-3)$	B.	$2\sin(2x-3)$
C.	$2\cos(2x-3)$	D.	$\cos(2x-3)$

ANS:-C

10. $\frac{d}{dx}(x)=$___.

A.	0	B.	e
C.	1	D.	π

ANS:-C

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

A.	$\tan x$	B.	$\sec x+\tan x$
C.	$\sec^2 x$	D.	$\sec x\cdot\tan x$

ANS:-D

12. $x=2t, y=t^2$ then $\frac{dy}{dx}=$____.

A.	t	B.	t^2
C.	$3t$	D.	0

ANS:-A

13. $f(x)$ has maxima at $x=a$ if _____.

A.	$f'(a)=0, f''(a)=0$	B.	$f'(a)=0, f''(a)>0$
C.	$f'(a)>0, f''(a)<0$	D.	$f'(a)=0, f''(a)<0$

ANS:-D

14. For $y = \cos x, \frac{d^2y}{dx^2} =$ ____.

A.	$\cos x$	B.	$-\sin x$
C.	$-\cos x$	D.	$\sin x$

ANS:-C

15. If $y = e^{3x}$ then $\frac{d^2y}{dx^2} =$ ____.

A.	$3e^x$	B.	$9e^{3x}$
C.	e^{9x}	D.	$3e^{2x}$

ANS:-B

16. Equation of the motion of moving particle is given by $s = 2t^2 - 3t + 6$, then velocity at $t = 1$ seconds is ____.

A.	2 units	B.	1 units
C.	4 units	D.	6 units

ANS:-B

17. $\frac{d}{dx}(\text{Sin2x}) =$ .....

A. 2 sin(2x) B. - 2 cos(2x)
C. 2 cos(2x) D. 2 sin(2x)

ANS:-C

18. $\frac{d}{dx}(3x^2 + 5x - 11) =$ .....

A. 6x + 5 - 11 B. 6x - 5
C. 6x + 5 + 11 D. 6x + 5

ANS:-D

19. $\frac{d}{dx}\left(\frac{1}{2x}\right) =$ .....

A. $\frac{1}{2x^2}$ B. $\frac{-1}{2x^2}$
C. $\frac{1}{x^2}$ D. $\frac{-1}{x^2}$

ANS:-B

20. If f(x) = 2^x, then $f'(0)$ = ...

A. log(2) B. 0
C. 2 log(2) D. -2 log(2)

ANS:-A

21. If $y = sin\left(\frac{\pi}{2023}\right)$, then $y' =$ .....

A. 0 B. 2
C. 1 D. -2

ANS:-A

22. $\frac{d}{dt}(at2) =$ ....., where a is constant

A. at B. a **C. $2at$** D. $2t$

23. $\frac{d}{d\theta}(\theta^4) =$ .....

A. $4\,\theta$ B. θ^3
C. $4\theta^3$ D. 0

ANS:-C

24. If $y = e^x + 4$ then y''=.....

A. 0 B. $e^x + 4$
C. e D. e^x

ANS:-D

25. f the equation of motion of a particle is given by $s = t^2$ then its velocity v =.....

A. $v = 2t$ B. $v = t$ C. $v = -t$ D. $v = -2t$

26. If $f'(a) = 0$ and $f''(a) > 0$ then the function $f(x)$ will have …..... value at the point a.

A. Maximum **B. Minimum**
C. Maximum and minimum D. Neither maximum nor minimum

27. $\frac{d}{dx}$ (Secx) = ...

A. Secx.tanx B. Cosecx.cotx
C. - Secx.tanx D. - Cosecx.cotx

28. $\frac{d}{dx}(logx) =$ .....

A. $\frac{1}{x}$ B. x
C. $-\frac{1}{x}$ D. $-x$

ANS:-A

29. $\frac{d}{dx}(Sinx + 10) = \ldots\ldots\ldots$

A. $Sinx + 10$ B. $Cosx + 10$
C. $Sinx$ D. $Cosx$

ANS:-D

30. $\frac{d}{dx}\left(2\sqrt{x}\right) = \ldots\ldots\ldots$

A. $2\sqrt{x}$ B. $\sqrt{x}$
C. $\frac{1}{\sqrt{x}}$ D. $\frac{1}{2\sqrt{x}}$

ANS:-C

31. If $(x) = Cosx$ then $f'(\pi) = \ldots\ldots\ldots$

A. -1 **B. 0** C. 1 D. π

32. In the symbol of differentiation, y''=…….

A. $\frac{d^2y}{d^2x}$ B. $\frac{dy^2}{dx^2}$
C. $\frac{d^2y}{dx^2}$ D. $\frac{dy^2}{d^2x}$

ANS:-C

33. If $f(x) = 3x^2 + 7x + 11$ then $f'(0) =$ ____.

A.	6	B.	7
C.	5	D.	11

ANS:-B

34. $\frac{d}{dx}\left(\frac{34}{11}\right)$=____.

A.	11	B.	0
C.	$\frac{34}{11}$	D.	$\frac{11}{34}$

ANS:-B

35. $x = b\cos\theta, y = b\sin\theta$ then $\frac{dy}{dx}$ = ____.

A.	$-\cot\theta$	B.	$a\cot\theta$
C.	$\tan\theta$	D.	$a\tan\theta$

ANS:-A

36. If $f(x)=5^x$ then $f'(x)=$ ___.

A.	$\log_e 5$	B.	$5^x \log_e 5$
C.	$5\log 5$	D.	5^x

ANS:-B

37. $\frac{d}{dx}\sin(2x-5)=$ _____.

A.	$\sin(2x-5)$	B.	$2\sin(2x-5)$
C.	$\cos(2x-5)$	D.	$2\cos(2x-5)$

ANS:-D

38. $\frac{d}{dx}(x^4+3x)=$ ___.

A.	x^4+3	B.	$4x^3+3$
C.	x^3+3	D.	$4x^3+3x$

ANS:-B

39. $\frac{d}{dx}(\tan^{-1}x)=$ ___.

A.	$\frac{-1}{1+x^2}$	B.	$\frac{1}{1+x^2}$
C.	$\frac{-1}{1-x^2}$	D.	$\frac{1}{1-x^2}$

ANS:-B

40. $\frac{d}{dx}[\log(\cos x)]=$ _____.

A.	$\frac{1}{\sin x}$	B.	$\frac{1}{\cos x}$
C.	$-\tan\theta$	D.	$-\cot\theta$

ANS:-C

41. $\frac{d}{dx}(\pi)=$ ___.

A.	0	B.	e
C.	1	D.	π

ANS:-A

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

A.	$\tan x$	B.	$\sec x+\tan x$
C.	$\sec^2 x$	D.	$\sec x\cdot\tan x$

ANS:-C

43. If $y = 2e^{3x}$ then $\frac{d^2y}{dx^2} =$ ____.

A.	$2e^{x}$	B.	$18e^{3x}$
C.	$2e^{9x}$	D.	$6e^{2x}$

ANS:-B

44. Equation of the motion of moving particle is given by $s = 2t^2 - 3t + 7$, then velocity at $t = 2$ seconds is ____.

A.	2 units	B.	1 units
C.	5 units	D.	6 units

ANS:-C

45. $x = t + 5, y = 2t$ then $\frac{dy}{dx} =$ ____.

A.	2	B.	$2t$
C.	$3t$	D.	0

ANS:-A

46. For $y = \sin x, \frac{d^2y}{dx^2} =$ ____.

A.	$\cos x$	B.	$-\sin x$
C.	$-\cos x$	D.	$\sin x$

ANS:-B

$f(x)$ has mimima at $x = a$ if ____.

A.	$f'(a) = 0, f''(a) = 0$	B.	$f'(a) = 0, f''(a) > 0$
C.	$f'(a) > 0, f''(a) < 0$	D.	$f'(a) = 0, f''(a) < 0$

ANS:-B

Ch 3 Integration & its Application

1. $\int \sec x \cdot \tan x \, dx =$ _____.

A.	$\tan x + c$	B.	$\sec x + \tan x + c$
C.	$\sec x + c$	D.	$\sec x \cdot \tan x + c$

ANS:-C

2. $\int \frac{1}{\sqrt{1-x^2}} dx =$ _____.

A.	$\tan^{-1} x + c$	B.	$\sin^{-1} x + c$
C.	$\cos^{-1} x + c$	D.	$\cot^{-1} x + c$

ANS:-B

3. $\int (2x+5) \, dx =$ _____$+c$.

A.	$x^2 + 5x$	B.	$x^2 + 5x^2$
C.	2	D.	$(2x-3)^2$

ANS:-A

4. $\int (1) \, d\theta =$ _____$+c$

A.	0	B.	1
C.	θ	D.	x

ANS:-C

5. $\int (\sin x - \cos x) dx =$ _____.

A.	$\cos x - \sin x + c$	B.	$\cos x + \sin x + c$
C.	$-\sin x - \cos x + c$	D.	$-\sin x + \cos x + c$

ANS:-C

6. $\int e^{3x} \, dx =$ _____$+c$.

A.	e^{3x}	B.	$3e^{3x}$
C.	$\frac{e^{3x}}{3}$	D.	$3e^{2x}$

ANS:-C

7. If $z_1 = 5+7i$ and $z_2 = 1+3i$ then $z_1 - z_2 =$ _____.

A.	$4+4i$	B.	$1+3i$
C.	$4-4i$	D.	$1-3i$

ANS:-A

8. $\int_0^1 \frac{1}{1+x^2}dx = \_\_\_\_\_.$

A.	0	B.	1
C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{2}$

ANS:-C

9. $\int_{-3}^{3} x^3\ dx = \_\_\_\_\_.$

A.	9	B.	2
C.	1	D.	0

ANS:-D

10. $\int_{-3}^{3} x^3\ dx = \_\_\_\_\_.$

A.	9	B.	2
C.	1	D.	0

ANS:-D

11. Area of the region bounded by the curves $y = x^2$, $x = 0$ and $x = 3$ is _____.

A.	4	B.	6
C.	7	D.	9

ANS:-D

12. $\int \frac{dx}{\sqrt{1-x^2}} = \_\_\_\_\_.$

A.	$\sin^{-1}x + c$	B.	$\sin^{-1}\left(\frac{x}{2}\right) + c$
C.	$\sin^{-1}(2x) + c$	D.	$2\sin^{-1}(x) + c$

ANS:-B

13. To find $\int f(x)dx$, for which function given below we have to use the rule of integration by parts?

A.	$f(x) = e^x$	B.	$f(x) = x^2 + \sin x$
C.	$f(x) = \sin x$	D.	$f(x) = x\sin x$

ANS:-D

14. $\int \tan x dx = \_\_\_\_ + c.$

A.	$\sec x$	B.	$\sec x \cdot \tan x$
C.	$\log \lvert\sec x\rvert$	D.	$\log \lvert\cos x\rvert$

ANS:-C

15. $\int 10\, dx = \ldots\ldots\ldots + c$

A. 10 B. $-10x$

C. 10x D. -10

ANS:-C

16. $\int (sin^2(x) + cos^2(x))\, dx = \ldots\ldots\ldots + c$

A. $cos^2(x)$ B. $sin^2(x)$

C. x D. 1

ANS:-C

17. $\int \frac{1}{8 - x^2}\, dx = \ldots\ldots\ldots + c$

A. $\frac{1}{2 \cdot 8} \log\left(\left|\frac{x+8}{x-8}\right|\right)$ B. $\frac{1}{2 \cdot \sqrt{8}} \log\left(\left|\frac{x+\sqrt{8}}{x-\sqrt{8}}\right|\right)$

C. $\frac{1}{2 \cdot 8} \log\left(\left|\frac{x-8}{x+8}\right|\right)$ D. $\frac{1}{2 \cdot \sqrt{8}} \log\left(\left|\frac{\sqrt{8}-x}{\sqrt{8}+x}\right|\right)$

ANS:-B

18. $\int tan(x)\, dx = \ldots\ldots\ldots + c$

A. log(|sec(x)|) B. log(|sin(x)|)

C. $sec^2(x)$ D. $-sec^2(x)$

ANS:-A

19. $\int \frac{1}{x^2 + 25}\, dx = \ldots\ldots\ldots + c$

A. $\frac{1}{5} \tan^{-1}\left(\frac{x}{5}\right)$ B. $\frac{1}{5} \cot^{-1}\left(\frac{x}{5}\right)$

C. $\frac{1}{25} \tan^{-1}\left(\frac{x}{25}\right)$ D. $\frac{1}{25} \cot^{-1}\left(\frac{x}{25}\right)$

ANS:-A

20. $\int \left(\frac{3}{7}\right)^x dx = \ldots\ldots\ldots + c$

A. $\left(\frac{3}{7}\right)^x \cdot \log\left(\frac{3}{7}\right)$

B. $\frac{\left(\frac{3}{7}\right)^x}{\log\left(\frac{3}{7}\right)}$

C. $x \cdot \left(\frac{3}{7}\right)^{x-1}$

D. $\frac{3}{7}$

ANS:-B

21. $\int \frac{3x^2+2}{x} dx = \ldots\ldots\ldots + c$

A. $3x^2 + 2log(x)$

B. $\frac{3}{2}x^2 + 2log(x)$

C. $x^2 + log(x)$

D. $\frac{3}{2}x + 2log(x)$

ANS:-B

22. $\int \frac{logx}{x} dx = \ldots\ldots\ldots + c$

A. $\frac{logx}{x}$

B. $\frac{logx^2}{2}$

C. $\frac{logx}{x^2}$

D. $\frac{(logx)^2}{2}$

ANS:-D

23. $\int \frac{1}{xlogx} dx = \ldots\ldots\ldots + c$

A. $log(logx)$

B. $logx$

C. $2log(logx)$

D. $logx$

ANS:-A

24. $\int_1^1 Cosec(5x)dx = \ldots\ldots\ldots$

A. 1

B. -1

C. ∞

D. 0

ANS:-C

25. $\int_{10}^{10} \frac{1}{2023+x^3} dx = \ldots\ldots\ldots$

A. 1

B. -1

C. ∞

D. 0

ANS:-D

26. The region bounded by X-axis, Y-axis and a line x + y = 2 is a …….

A. Ellipse **B. Triangle** C. Parabola D. Circle

27. $\int e^x\,(Sinx + Cosx)dx = \ldots\ldots\ldots + c$

A. $Sinx$ B. $Cosx$

C. $e^x Sinx$ D. $e^x Cosx$

ANS:-C

28. $\int_{\pi}^{\pi} \text{Cot}(\pi/2)dx = \ldots\ldots\ldots$

A. 0 B. -1

C. ∞ D. 1

ANS:-A

29. $\int (1)\,dx = \_\_\_\_\_ + c$

A.	0	B.	1
C.	θ	D.	x

ANS:-D

30. $\int_{-2}^{2} x^3\,dx = \_\_\_\_\_ .$

A.	9	B.	6
C.	1	D.	0

ANS:-D

31. $\int (4x+5)\,dx = \_\_\_\_\_ + c\,.$

A.	$2x^2+5x$	B.	$4x^2+5x^2$
C.	4	D.	$(2x-3)^2$

ANS:-A

32. $\int (\sin^2 x + \cos^2 x)dx = \_\_\_\_\_ .$

A.	$\cos x - \sin x + c$	B.	$x + c$
C.	$-\sin x - \cos x + c$	D.	0

ANS:-B

33. $\int \frac{1}{\sqrt{1-x^2}}\,dx = \_\_\_\_\_ .$

A.	$\tan^{-1} x + c$	B.	$\cot^{-1} x + c$
C.	$\cos^{-1} x + c$	D.	$\sin^{-1} x + c$

ANS:-D

34. $\int \sec x \cdot \tan x \, dx =$ _____.

A.	$\tan x + c$	B.	$\sec x + \tan x + c$
C.	$\sec x + c$	D.	$\sec x \cdot \tan x + c$

ANS:-C

35. $\int 4^x \, dx =$ _____ $+ c$.

A.	4^x	B.	$\frac{3^x}{\log_e 4}$
C.	$\frac{4^x}{\log_e 4}$	D.	$\frac{1}{\log_e 4}$

ANS:-C

36. $\int \frac{1}{x-3} dx =$ _____ $+ c$.

A.	$\log\lvert x \rvert$	B.	$x - 3$
C.	$\log\lvert x - 3 \rvert$	D.	x

ANS:-C

37. Area of the region bounded by the curves $y = 2x$, $x = 0$ and $x = 3$ is _____.

A.	4	B.	6
C.	7	D.	9

ANS:-D

38. $\int_0^1 \frac{3}{1+x^2} dx =$ _____.

A.	$\frac{\pi}{4}$	B.	$\frac{3\pi}{4}$
C.	0	D.	1

ANS:-B

39. $\int uv dx =$ _____ $+ c$. (Where u and v are functions of x)

A.	$u \int v dx$	B.	$v \int u dx$
C.	$u \int v dx + \int \left(\frac{du}{dx} \int v dx \right) dx$	D.	$u \int v dx - \int \left(\frac{du}{dx} \int v dx \right) dx$

ANS:-D

40. $\int \tan x dx = \_\_\_\_ + c.$

A.	$\sec x$	B.	$\sec x \cdot \tan x$
C.	$\log \lvert \sec x \rvert$	D.	$\log \lvert \cos x \rvert$

ANS:-C

41. $\int \frac{dx}{\sqrt{1-x^2}} = \_\_\_\_.$

A.	$\sin^{-1} x + c$	B.	$\sin^{-1}\left(\frac{x}{2}\right) + c$
C.	$\sin^{-1}(2x) + c$	D.	$2\sin^{-1}(x) + c$

ANS:-A

CH 4 Differentials Equations

1. Degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^3 - \frac{dy}{dx} + y = 0$ is____.

A.	1	B.	2
C.	3	D.	4

ANS:-C

2. Degree of the differential equation $\frac{dy}{dx} + y = 0$ is____.

A.	0	B.	1
C.	2	D.	3

ANS:-B

3. Order of the differential equation $\left(\frac{d^2y}{dx^2}\right)^2 - \frac{dy}{dx} + y = 0$ is____.

A.	1	B.	3
C.	2	D.	4

ANS:-C

4. Order of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2 - \left(\frac{dy}{dx}\right)^4 + 2y = \sin x$ is____.

A.	4	B.	3
C.	2	D.	1

ANS:-B

5. Degree of the differential equation $\left(\frac{d^2y}{dx^2}\right)^4 + \left(\frac{dy}{dx}\right)^2 + y = 0$ is____.

A.	3	B.	4
C.	2	D.	1

ANS:-B

6. Degree of the differential equation $\sin\left(\frac{dy}{dx}\right) + y = 0$ is____.

A.	1	B.	2
C.	0	D.	Not defined

ANS:-D

7. Which is a solution of differential equation $\frac{dy}{dx} - y = 0$

A.	$\sin x$	B.	6
C.	$\cos x$	D.	e^x

ANS:-D

8. Solution of differential equation $xdx + ydy = 0$ is _____.

A.	$x + y = c$	B.	$x^2 + y^2 = c$
C.	$xy = c$	D.	$x^2 - y^2 = c$

ANS:-B

9. Which is a differential equation from given equations?

A.	$x + y = 3$	B.	$xy = c$
C.	$\frac{dy}{dx} + y = 0$	D.	$x - \sin x = 0$

ANS:-C

10. Solution of differential equation $ydx - xdy = 0$ is _____.

A.	$x - y = c$	B.	$x^2 - y^2 = c$
C.	$x^2 + y^2 = c$	D.	$x = cy$

ANS:-D

11. Formula for solving linear differential equation $\frac{dy}{dx} + P(x)y = Q(x)$ is given by $y(I.F) = \int \_\_\_ \cdot (I.F)dx + c$.

A.	$P(x)$	B.	$Q(x)$
C.	$P(x) + Q(x)$	D.	$xP(x)$

ANS:-B

12. Integrating factor (I.F.) of differential equation $\frac{dy}{dx} + \frac{y}{x} = e^x$ is _____.

A.	$\log x$	B.	e^x
C.	$\frac{1}{x}$	D.	x

ANS:-D

13. Integrating factor (I.F.) of differential equation $\frac{dy}{dx} + y\tan x = 2\sin x$ is _____.

A.	$\tan x$	B.	$\cot x$
C.	$\sec x$	D.	$\sin x$

ANS:-C

14. Find order of the following differential equation: $\frac{d^2y}{dx^2} = \left[3 + \left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}$

A. 1 B. 2
C. 3 D. 0

ANS:-B

15. Find degree of the following differential equation: $\frac{d^2y}{dx^2} = \left[3 + \left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}$

A. 1 B. 2
C. 3 D. 0

ANS:-B

16. Which of the following is a differential equation?

A. $\frac{dy}{dx} = \sin(y)$ B. $x^2 - y^2 = 1$
C. $y = \sin(y)$ D. $x^2 + y^2 = 1$

ANS:-A

17. What is the order of the following differential equation

$L\frac{di}{dt} + Ri = E\sin(\omega t)$?

A. 0 B. -1 **C. 1** D. 2

18. The degree of the differential equation $\frac{dy}{dx} + \cos\left(\frac{dy}{dx}\right) = 0$ is .....

A. 1 B. 2
C. -1 D. not defined

ANS:-D

19. A differential equation of system of linear equations: y = mx + c (m and c are constants)

A. $\frac{d^2y}{dx^2} = m$ B. $\frac{d^2y}{dx^2} = 0$
C. $\frac{dy}{dx} = c$ D. $\frac{dy}{dx} = 0$

ANS:-A

20. Which of the following is not a differential equation?

A. $\left(\frac{y}{x}\right)^2 - \frac{y^2}{2} = 0$ B. $\frac{dy}{dx} - \frac{y^2}{2} = \sin(y)$
C. $\left(\frac{dy}{dx}\right)^2 - \frac{y^2}{2} = 0$ D. $y' - y = \tan(x)$

ANS:-A

21. Which of the following is a linear differential equation?

A. $\frac{dy}{dx} + y^2 = c$

B. $y\frac{dy}{dx} + xy^2 = y$

C. $\frac{dy}{dx} + xy^2 = \text{Sinx}$

D. $\frac{dy}{dx} + xy^2 = y$

ANS:-B

22. Which of the following is not a variable separable form of differential equation?

A. $\frac{dy}{dx} + xy = 0$

B. $\frac{dy}{dx} + tanx.y = y.Cosecx$

C. $\frac{dy}{dx} + y^2 = y.Sinx$

D. $\frac{dy}{dx} + xy = 2x$

ANS:-C

23. The integrating factor of the differential equation $\frac{dy}{dx} + y = x$ is ……

A. x

B. e^x

C. xe^x

D. ex

ANS:-B

24. Thesoultion of a differential equation $\frac{dy}{dx} - y = 0$ is .....

A. $y = Sinx$

B. $y = e$

C. $y = -e^x$

D. $y = e^x$

ANS:-D

25. $\frac{dy}{dx}(e^x + 3) =$ ____.

A.	1	B.	3
C.	e^x	D.	$\sin x$

ANS:-C

26. Order of the differential equation $\left(\frac{d^2y}{dx^2}\right)^3 - 5\frac{dy}{dx} + 6y = 0$ is____.

A.	1	B.	3
C.	2	D.	4

ANS:-C

27. Degree of the differential equation $\frac{dy}{dx}+y=\sin x$ is____.

A.	0	B.	2
C.	1	D.	3

ANS:-C

28. Degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2-\frac{dy}{dx}+y=e^x$ is____.

A.	2	B.	3
C.	1	D.	4

ANS:-A

29. Which is a differential equation from given equations?

A.	$3x+y=3$	B.	$xy=c$
C.	$\frac{dy}{dx}+y=x$	D.	$x-\sin x=0$

ANS:-C

30. Degree of the differential equation $\log\left(\frac{dy}{dx}\right)+y=0$ is____.

A.	1	B.	2
C.	0	D.	Not defined

ANS:-D

31. Degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^3+\left(\frac{dy}{dx}\right)^3+y=0$ is____.

A.	2	B.	4
C.	3	D.	1

ANS:-B

32. Order of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2-\left(\frac{dy}{dx}\right)^5+2y=x$ is____.

A.	4	B.	3
C.	2	D.	5

ANS:-B

33. Which is a solution of differential equation $\frac{dy}{dx}-y=0$

A.	$\sin x$	B.	5
C.	$\cos x$	D.	e^x

ANS:-D

34. Solution of differential equation $ydx - xdy = 0$ is _____.

A.	$x - y = c$	B.	$x^2 + y^2 = c$
C.	$x^2 - y^2 = c$	D.	$y = cx$

ANS:-D

35. Solution of differential equation $xdx + ydy = 0$ is _____.

A.	$x + y = c$	B.	$x^2 + y^2 = c$
C.	$xy = c$	D.	$x^2 - y^2 = c$

ANS:-B

36. Integrating factor (I.F.) of differential equation $\frac{dy}{dx} + \frac{y}{x} = \sin x$ is _____.

A.	$\log x$	B.	e^x
C.	$\frac{1}{x}$	D.	x

ANS:-D

37. Formula for solving linear differential equation $\frac{dy}{dx} + P(x)y = Q(x)$ is given by $y \cdot \_\_\_\_ = \int Q(x) \cdot (I.F)dx + c$.

A.	$P(x)$	B.	$Q(x)$
C.	$I.F$	D.	$xP(x)$

ANS:-C

38. Integrating factor (I.F.) of differential equation $\frac{dy}{dx} + y \tan x = e^x$ is _____.

A.	$\sec x$	B.	$\cot x$
C.	$\tan x$	D.	$\sin x$

ANS:-A

CH 5 complex number

1. $i^2+1=$_____.

A.	0	B.	i
C.	$-i$	D.	-1

ANS:-A

2. If $z=1-2i$ then $\text{Im}(z)=$___.

A.	1	B.	i
C.	$-i$	D.	-2

ANS:-D

3. If $z_1=5+2i$ and $z_2=1+3i$ then $z_1\cdot z_2=$_____.

A.	$7-3i$	B.	$-1+17i$
C.	$3+7i$	D.	$3-7i$

ANS:-B

4. $(\cos\theta+i\sin\theta)^3=$_____

A.	$\cos 2\theta+i\sin 2\theta$	B.	$\cos 2\theta-i\sin 2\theta$
C.	$\cos 3\theta+i\sin 3\theta$	D.	$\sin 3\theta-i\cos 3\theta$

ANS:-C

5. For complex number z, $z\cdot\bar{z}=$____.

A.	$\lvert z\rvert$	B.	$\lvert z\rvert^2$
C.	$\lvert\bar{z}\rvert$	D.	1

ANS:-B

6. If $z_1=2+3i$ and $z_2=3+8i$ then $z_1+z_2=$_____.

A.	$5+11i$	B.	$11+5i$
C.	$5-i$	D.	5

ANS:-A

7. If $z=4+7i$ then $\text{Re}(z)=$_____.

A.	2	B.	7
C.	4	D.	0

ANS:-C

8. For complex number $z = -3 + 4i$, $|z| =$ ___ .

A.	0	B.	5
C.	-5	D.	25

ANS:-B

9. If $z = -1 - i$ then $\bar{z} =$ ___ .

A.	$1+i$	B.	$-1+i$
C.	$1-i$	D.	$-1-i$

ANS:-B

10. For $z = 2i$, arg(z) = ___.

A.	2π	B.	π
C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$

ANS:-C

11. જો $x - 3i = 4 + yi$ તો $x =$ __, $y =$ __

A.	$4, -3$	B.	$-4, -3$
C.	$-4, 3$	D.	$4, 3$

ANS:-A

12. If z = 2 + i3, then $\bar{z}$ = ...

A. 2 + i3 B. 2 - i3

C. $\frac{2}{13} + i\frac{3}{13}$ D. $\frac{2}{13} - i\frac{3}{13}$

ANS:-B

13. If z = 4 - i3, then |z| = ...

A. 1 B. -1

C. 5 D. $\sqrt{5}$

ANS:-C

14. i^{16} = ...

A. i B. $-i$ **C. 1** D. -1

15. $(cos(\theta) + i\, sin(\theta))^2 + (cos(\theta) + i\, sin(\theta))^{-2}$ = ...

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

C. $2i\, sin(2\theta)$ D. $2i\, cos(2\theta)$

ANS:-B

16. $(cos(3\theta) + i\, sin(3\theta))^{-6} = \ldots\ldots\ldots$

A. $cos(18\theta) + i\, sin(18\theta)$ B. $cos(9\theta) + i\, sin(9\theta)$

C. $cos(18\theta) - i\, sin(18\theta)$ D. $cos(9\theta) - i\, sin(9\theta)$

ANS:-C

17. Find the value of x and y from the following equation $(2y - 5) + i(4 - 2x) = 0$

A. $x = 2, y = \frac{5}{2}$ B. $x = 2, y = \frac{-5}{2}$

C. $x = -2, y = \frac{5}{2}$ D. $x = -2, y = \frac{-5}{2}$

ANS:-A

18. What is the inverse of the complex number $1 + i2$?

A. $\frac{1}{5} + i\frac{2}{5}$ B. $\frac{2}{5} - i\frac{1}{5}$

C. $\frac{2}{5} + i\frac{1}{5}$ D. $\frac{1}{5} - i\frac{2}{5}$

ANS:-D

19. $i^{17} + i^{18} + i^{19} + i^{20} = \ldots\ldots\ldots$

A. 2 B. 2i

C. -2i D. 0

ANS:-D

20. The principal argument (θ) of the complex number $-1 + i$ is .....

A. $\frac{\pi}{4}$ B. $\frac{3\pi}{4}$

C. $-\frac{\pi}{4}$ D. $-\frac{3\pi}{4}$

ANS:-B

21. If $|z| = 16$, then $|\bar{z}| = \ldots\ldots\ldots$

A. 16 B. -16

C. 4 D. -4

ANS:-A

22. $\sqrt{-16} = \ldots\ldots$

A. -4 B. $-4i$

C. $4i$ D. -4

ANS:-C

23. $\frac{2}{1+i} = \ldots\ldots$

A. $1+i$ B $1-i$

C i D $-i$

ANS:-B

24. If $z = 3-2i$ then $\text{Im}(z) = \_\_\_$.

A.	1	B.	i
C.	$-i$	D.	-2

ANS:-D

25. $(\cos 2\theta + i\sin 2\theta)^3 = \_\_\_\_\_$

A.	$\cos 2\theta + i\sin 2\theta$	B.	$\cos 2\theta - i\sin 2\theta$
C.	$\cos 6\theta + i\sin 6\theta$	D.	$\sin 3\theta - i\cos 3\theta$

ANS:-C

26. If $z_1 = 3+8i$ and $z_2 = 2+3i$ then $z_1 - z_2 = \_\_\_\_\_$.

A.	$1+5i$	B.	$5+i$
C.	$5-i$	D.	5

ANS:-A

27. If $z = 2+7i$ then $\text{Re}(z) = \_\_\_\_\_$.

A.	2	B.	7
C.	4	D.	0

ANS:-A

28. For complex number $z = -1+2i$, $|z|^2 = \_\_\_$.

A.	0	B.	5
C.	-5	D.	25

ANS:-B

29. For $z = 3i$, $\arg(z) = \_\_\_$.

A.	2π	B.	0
C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$

ANS:-C

30. $i^2 + 1 + i = \_\_\_\_\_$.

A.	0	B.	i
C.	$-i$	D.	-1

ANS:-B

31. If $z_1 = 4+2i$ and $z_2 = 2+3i$ then $z_1 \cdot z_2 =$ _____.

A.	$2+16i$	B.	$2-16i$
C.	$6+5i$	D.	$3-7i$

ANS:-A

32. If $z_1 = 5+7i$ and $z_2 = 1+3i$ then $z_1 - z_2 =$ _____.

A.	$6+4i$	B.	$6-4i$
C.	$4-6i$	D.	$1-3i$

ANS:-

33. $x-5i = 3+yi$ then $x =$ __, $y =$ __

A.	$3, -5$	B.	$-5, -3$
C.	$-4, 3$	D.	$-5, 3$

ANS:-A

34. If $z = 1+3i$ then $\bar{z} =$ ____.

A.	$1-3i$	B.	$1+3i$
C.	$3-i$	D.	$-1+3i$

ANS:-A

35. For complex number z, $|z|^2 =$ _____.

A.	$\lvert z \rvert$	B.	$z \cdot \bar{z}$
C.	$\lvert \bar{z} \rvert$	D.	1

ANS:-B