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(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

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12th BM ONE MARKS BOOK BACK

Chapter 1

1.If A=(1 2 3), then the rank of AA^T is

a)0 b) 2 c) 3 d) 1

2. The Rank of $m \times n$ matrix whose elements are unity is

a)0 b) 1 c) m d) n

3.If $T = \begin{matrix} A \\ B \end{matrix}\begin{pmatrix} 0.4 & 0.6 \\ 0.2 & 0.8 \end{pmatrix}$ is a transition probability matrix, then at equilibrium A is equal to

a)$\frac{1}{4}$ b) $\frac{1}{5}$ c) $\frac{1}{6}$ d) $\frac{1}{8}$

4.If $A = \begin{pmatrix} 2 & 0 \\ 0 & 8 \end{pmatrix}$, then $\rho(A)$ is

a)0 b) 1 c) 2 d) n

5.The Rank of the matrix $\begin{pmatrix} 1 & 1 & 1 \\ 1 & 2 & 3 \\ 1 & 4 & 9 \end{pmatrix}$ is

a)0 b) 2 c) 3 d) 1

6. The rank of the unit matrix of order n is

a) $n-1$ b) n c) $n+1$ d) n^2

7. If $\rho(A) = r$ then which of the following is correct?
(a) all the minors of order r which does not vanish
(b) A has at least one minor of order r which does not vanish
(c) A has at least one (r+1) order minor which vanishes
(d) all (r+1) and higher order minors should not vanish

8.If $A = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$ then the rank of AA^T is

a)0 b) 2 c) 3 d) 1

9. If thye rank of the matrix $\begin{pmatrix} \lambda & -1 & 0 \\ 0 & \lambda & -1 \\ -1 & 0 & \lambda \end{pmatrix}$ is 2. Then λ is

a)01 b) 2 c) 3 d) only real number

10.The rank of the diagonal matrix $\begin{bmatrix} 1 & & & & \\ & 2 & & & \\ & & -3 & & \\ & & & 0 & \\ & & & & 0 \end{bmatrix}$

a)0 b) 2 c) 3 d) 5

11.If $T = \begin{matrix} A \\ B \end{matrix}\begin{pmatrix} 0.7 & 0.3 \\ 0.6 & x \end{pmatrix}$ is a transition probability matrix,then the value of x is

a)0 .2 b) 0.3 c) 0.4 d) 0.7

12. which of the following is not an elementary transformation?

a)$R_i \leftrightarrow R_j$ b)$R_i \rightarrow 2R_i + 2C_j$ c) $R_i \rightarrow 2R_i - 4R_j$ d) $C_i \rightarrow C_i + 5C_j$

13. If $\rho(A) = \rho(A,B)$ then the system is
(a) Consistent and has infinitely many solutions
(b) Consistent and has a unique solution
(c) Consistent (d) inconsistent

14. If $\rho(A) = \rho(A,B) =$ the number of unknowns, then the system is

(a) Consistent and has infinitely many solutions

(b) Consistent and has a unique solution

(c) inconsistent (d) consistent

15. If $\rho(A) \neq \rho(A,B)$ then the system is

(a) Consistent and has infinitely many solutions

(b) Consistent and has a unique solution

(c) inconsistent (d) consistent

16. In a transition probability matrix, all the entries are greater than or equal to
(a) 2 (b) 1 (c) 0 (d) 3

17. If the number of variables in a non- homogeneous system $AX = B$ is n, then the system possesses a unique solution only when

a) $\rho(A) = \rho(A,B) > n$ b) a) $\rho(A) = \rho(A,B) = n$ c) $\rho(A) = \rho(A,B) < n$ d) none of these

18.The system of equations $4x + 6y = 5, 6x + 9y = 7$ has

a) a unique solution b) no solution c) infinitely many solutions d) none of these

19. For the system of equations $x + 2y + 3z = 1, 2x + y + 3z = 2, 5x + 5y + 9z = 4$

a) there is only one solution b) there exists infinitely many solutions
c) there is no solution d) None of these

20. If $|A| \neq 0$, then A is

a) non-singular matrix b) singular matrix c) zero matrix d) none of these

21.The system of equations $x+y+z=2, 2x+y-z=3, 3x+2y+k=4$ has unique solution, if k is not equal to

a) 4 b) 0 c) -4 d) 1

22. Cramer's rule is applicable only to get an unique solution when

a) $\Delta_z \neq 0$ b) $\Delta_x \neq 0$ c) $\Delta \neq 0$ d) $\Delta_y \neq 0$

23. If $\frac{a_1}{x}+\frac{b_1}{y}=c_1, \frac{a_2}{x}+\frac{b_2}{y}=c_2, \Delta_1=\begin{vmatrix} a_1 & b_1 \\ a_2 & b_2 \end{vmatrix}; \Delta_2=\begin{vmatrix} b_1 & c_1 \\ b_2 & c_2 \end{vmatrix}; \Delta_3=\begin{vmatrix} c_1 & a_1 \\ c_2 & a_2 \end{vmatrix}$; then $(x,y)$is

a) $\left(\frac{\Delta_2}{\Delta_1}, \frac{\Delta_3}{\Delta_1}\right)$ b) $\left(\frac{\Delta_3}{\Delta_1}, \frac{\Delta_2}{\Delta_1}\right)$ c) $\left(\frac{\Delta_1}{\Delta_2}, \frac{\Delta_1}{\Delta_3}\right)$ d) $\left(-\frac{\Delta_1}{\Delta_2}, -\frac{\Delta_1}{\Delta_3}\right)$

24.$|A_{n\times n}| = 3$ $|adjA| = 243$then the value of n is

a) 4 b) 5 c) 6 d) 7

25. Rank of the null matrix is

a) 0 b) -1 c) ∞ d) 1

chapter-2

1. $\int \frac{1}{x^3} dx$ **is**

a) $\frac{-3}{x^2}+c$ **b)** $\frac{-1}{2x^2}+c$ **c)** $\frac{-1}{3x^2}+c$ **d)** $\frac{-2}{x^2}+c$

2. $\int 2^x dx$ **is**

a) $2^x log 2 + c$ **b)** 2^x **c)** $\frac{2^x}{log 2}+c$ **d)** $\frac{log 2}{2^x}+c$

3. $\int \frac{sin2x}{2\,sinx} dx$ **is**

a) sinx+c **b)** $\frac{1}{2}sinx + c$ **c) cos x+c** **d)** $\frac{1}{2}cosx + c$

4. $\int \frac{sin5x-sinx}{cos\,3x} dx$**is**

(a) $-\cos 2x + c$ (b) $\cos 2x + c$ c)- $\frac{1}{4}cos2x + c$ d)) $-4cos2x + c$

5.$\int \frac{logx}{x} dx, x > 0$ *is*

a) $\frac{1}{2}(logx)^2 +$ ***b)*** $-\frac{1}{2}(logx)^2$ ***c)*** $\frac{2}{x^2}+c$ ***d)*** $-\frac{2}{x^2}$

6. $\int \frac{e^x}{\sqrt{1+e^x}} dx$ ***is***

a) $\frac{e^x}{\sqrt{1+e^x}}+c$ ***b)*** $2\sqrt{1+e^x}+c$ ***c)*** $\sqrt{1+e^x}+c$ ***d)*** $e^x\sqrt{1+e^x}+c$

7. $\int \sqrt{e^x}\, dx$ ***is***

a) $\sqrt{e^x}+c$ ***b)*** $2\sqrt{e^x}+c$ ***c)*** $\frac{1}{2}\sqrt{e^x}+c$ ***d)*** $\frac{1}{2\sqrt{e^x}}+c$

8. $\int e^{2x}[2x^2+2x]dx$

a) $e^{2x}x^2+c$ b) $xe^{2x}+c$ c) $2x^2e^2+c$ d) $\frac{x^2e^x}{2}$+c

9. $\int \frac{e^x}{e^x+1}dx$ is

a) $\log\left|\frac{e^x}{e^x+1}\right|+c$ b) $\log\left|\frac{e^x+1}{e^x}\right|+c$ c) $\log|e^x|+c$ d) $\log|e^x+1|+c$

10. $\int[\frac{9}{x-3}-\frac{1}{x-1}]dx$is

a) $\log|x-3|-\log|x+1|+c$ b) $\log|x-3|+\log|x+1|+c$
c) $9\log|x-3|-\log|x+1|+c$ d) $9\log|x-3|-3\log|x+1|+c$

11. $\int \frac{2x^3}{4+x^4}dx$ is

a)$\log|4+x^4|+c$ b) $\frac{1}{2}\log|4+x^4|+c$ c) $\frac{1}{4}\log|4+x^4|+c$ d) $\log\left|\frac{2x^3}{4+x^4}\right|+c$

12. $\int \frac{dx}{\sqrt{x^2-36}}$ is

a) $\sqrt{x^2-36}+c$ b)$\log|x+\sqrt{x^2-36}|+c$ c) $\log|x-\sqrt{x^2-36}|+c$ d) $\log|x^2+\sqrt{x^2-36}|+c$

13. $\int \frac{2x+3}{\sqrt{x^2+3x+2}}dx$ is

a) $\sqrt{x^2+3x+2}+c$ b) $2\sqrt{x^2+3x+2}+c$ c) $\log(x^2+3x+2)+c$ d) $\frac{2}{3}(x^2+3x+2)^{\frac{3}{2}}+c$

14. $\int_0^1(2x+1)dx$ *is*

a) 1 b) 2 c) 3 d) 4

15. $\int_0^1 \frac{dx}{x}$ is

a) log 4 b) 0 c) log 2 d) log 8

16. $\int_0^\infty e^{-2x}\,dx$ is

a) 0 b) 1 c) 2 d) $\frac{1}{2}$

17. $\int_{-1}^1 x^3e^{x^4}\,dx$ is

a) 1 b) $2\int_0^1 x^3e^{x^4}\,dx$ c) 0 d) e^{x^4}

18. If f(x) is continuous function and $a<c<b$, then $\int_a^c f(x)\,dx+\int_c^b f(x)dx$ is

a) $\int_a^b f(x)\,dx - \int_a^c f(x)dx$ b) $\int_a^c f(x)\,dx - \int_a^b f(x)dx$ c) $\int_a^b f(x)\,dx$ d) 0

19. The value of $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos x\,dx$ is

a) 0 b) 2 c) 1 d) 4

20. $\int_0^1 \sqrt{x^4(1-x)^2}\,dx$ is

a) $\frac{1}{12}$ b) $\frac{-7}{12}$ c) $\frac{7}{12}$ d) $\frac{-1}{12}$

21. If $\int_0^1 f(x)\,dx = 1, \int_0^1 xf(x)\,dx = a$ and $\int_0^1 x^2 f(x)\,dx = a^2$ then $\int_0^1 (a-x)^2 f(x)\,dx$ is

a) $4a^2$ b) 0 c) $2a^2$ d) 1

22. The value of $\int_0^1 f(5-x)\,dx - \int_2^3 f(x)\,dx$ is

a) 1 b) 0 c) -1 d) 5

23. $\int_0^4 (\sqrt{x} + \frac{1}{\sqrt{x}})dx$ is

a) $\frac{20}{3}$ b) $\frac{21}{3}$ c) $\frac{28}{3}$ d) $\frac{1}{3}$

24. $\int_0^{\frac{\pi}{3}} \tan x\,dx$ is

a) log 2 b) 0 c) log $\sqrt{2}$ d) 2log 2

25. Using the factorial representation of the gamma function, which of the following is the solution for the gamma function $\Gamma(n)$ when n=8

a) 5040 b) 5400 c) 4500 d) 5540

26. $\Gamma(n)$ is

a) $(n-1)!$ b) $n!$ c) n $\Gamma(n)$ d) $(n-1)\Gamma(n)$

27. $\Gamma(1)$ is

a) 0 b) 1 c) n d) $n!$

28. if $n > 0$, then $\Gamma(n)$ is

a) $\int_0^1 e^{-x} x^{n-1} dx$ b) $\int_0^1 e^{-x} x^n dx$ c) $\int_0^\infty e^x x^{-n} dx$ d) $\int_0^\infty e^{-x} x^{n-1} dx$

29. $\Gamma\left(\frac{3}{2}\right)$

a) $\sqrt{\pi}$ b) $\frac{\sqrt{\pi}}{2}$ c) $2\sqrt{\pi}$ d) $\frac{3}{2}$

30. $\int_0^{\infty} x^4 e^{-x} dx$ is

a) 12 b) 4 c) 4! d) 64

CHAPTER-3

1. Area bounded by the curve $y = x(4 - x)$ between the limits 0 and 4 with x – axis is

a) $\frac{30}{3} sq\ units$ b) $\frac{31}{2} sq\ units$ c) $\frac{32}{3} sq\ units$ d) $\frac{15}{3} sq\ units$

2. Area bounded by the curve $y = e^{-2x}$ between the limits $0 \leq x \leq \infty$ is

a) 1 $sq\ units$ b) $\frac{1}{2} sq\ units$ c) 5 $sq\ units$ d) 2 $sq\ units$

3. Area bounded by the curve $y = \frac{1}{x}$ between the limits 1 and 2 is

a) log 2 $sq\ units$ b) log 5 $sq\ units$ c) log 3 $sq\ units$ d) log 4 $sq\ units$

4. If the marginal revenue function of a firm is $MR = e^{-\frac{x}{10}}$, then revenue is

a) $-10e^{-\frac{x}{10}}$ b) $1 - e^{-\frac{x}{10}}$ c) $10(1 - e^{-\frac{x}{10}})$ d) $e^{-\frac{x}{10}} + 10$

5. If MR and MC denotes the marginal revenue and marginal cost functions, then the profit functions is

a) $P = \int (MR - MC)dx + k$ b) $P = \int (MR + MC)dx + k$

c) $P = \int (MR)(MC)dx + k$ d) $P = \int (R - C)dx + k$

6. The demand and supply functions are given by $D(x) = 16 - x^2$ and $S(x) = 2x^2 + 4$ are under perfect competition, then the equilibrium price x is

(a) 2 (b) 3 (c) 4 (d) 5

7. The marginal revenue and marginal cost functions of a company are $MR = 30 - 6x$ and $MC = -24 + 3x$ where x is the product, then the profit function is

a) $9x^2 + 54$ b) $9x^2 - 54$ c) $54x - 9x^2$ d) $54x - \frac{9x^2}{2} + k$

8. The given demand and supply function are given by $D(x) = 16 - x^2$ and $S(x) = 2x^2 + 4$ if they are under perfect competition then the equilibrium demand is

(a) 40 (b) $\frac{41}{2}$ c) $\frac{40}{3}$ d) $\frac{41}{5}$

9. If the marginal revenue $MR = 35 + 7x - 3x^2$, then the average revenue AR is

a) $35x + \frac{7x^2}{2} - x^3$ b) a) $35x + \frac{7x^2}{2} - x^3$

c) a) $35x + \frac{7x^2}{2} - x^3$ d) a) $35x + \frac{7x^2}{2} - x^3$

10. The profit function $P(x)$ is maximum when

a) $MC - MR = 0$ b) MC=0 c) MR=0 d) MC+MR=0

11. For the demand function $p(x)$, the elasticity of demand with respect to price is unity then

(a) revenue is constant (b) cost function is constant

(c) profit is constant (d) none of these

12. The demand function for the marginal function $MR = 100 - 9x^2$is

a) $100 - 3x^2$ b) $100x - 3x^2$ c) $100x - 9x^2$ d) $100 + 9x^2$

13.When $x_\circ = 5\ and\ p_\circ = 3$ the consumer's surplus for the demand function $p_d = 28 - x^2$ is

a) $250\ units$ b) $\frac{250}{3}\ units$ c) $\frac{251}{2}\ units$ d) $\frac{251}{3}\ units$

14. When $x_\circ = 2\ and\ p_\circ = 12$ the producer's surplus for the supply function $p_d = 2x^2 + 4$ is

a) $\frac{31}{5}\ units$ b) $\frac{31}{2}\ units$ c) $\frac{32}{3}\ units$ d) $\frac{30}{7}\ units$

15.Area bounded by $y = x$ between the lines $y = 1, y = 2$ with y-axis is

a) $\frac{1}{2}\ sq\ units$ b) $\frac{5}{2}\ sq\ units$ c) $\frac{3}{2}\ sq\ units$ d) $1\ sq\ units$

16. The producer's surplus when the supply function for a commodity is $p = 3 + x$ and $x_\circ = 3$ is

a) $\frac{5}{2}$ b) $\frac{9}{2}$ c) $\frac{3}{2}$ d) $\frac{7}{2}$

17. The marginal cost function is $MC = 100\sqrt{x}$. find AC given that TC =0 when the out put is zero is

a) $\frac{200}{3}x^{\frac{1}{2}}$ b) $\frac{200}{3}x^{\frac{3}{2}}$ c) $\frac{200}{3x^{\frac{3}{2}}}$ d) $\frac{200}{3x^{\frac{1}{2}}}$

18. The demand and supply function of a commodity are $p(x) = (x-5)^2$ and $S(x) = x^2 + x + 3$ then the equilibrium quantity $x_\circ$ is

a) 5 b) 2 c) 3 d) 19

19. The demand and supply function of a commodity are $D(x) = 25 - 2x$ and $S(x) = \frac{10+x}{4}$ then the equilibrium price $p_\circ$ is

a) 5 b) 2 c) 3 d) 10

20. If MR and MC denote the marginal revenue and marginal cost and $MR - MC = 36x - 3x^2 - 81$

Then the maximum profit at x is equal to

a) 3 b) 6 c) 9 d) 5

21. If the marginal revenue of a firm is constant, then the demand function is

(a) MR (b) MC (c) C (x) (d) AC

22. For the demand function p,if $\int \frac{dp}{p} = k \int \frac{dx}{x}$ then k is equal to

a) η_d b) $-\eta_d$ c) $\frac{-1}{\eta_d}$ d) $\frac{1}{\eta_d}$

23. Area bounded by $y = e^x$ between the limits 0 and 1 is

a) $(e-1)\ sq\ units$ b) $(e+1)\ sq\ units$ c) $(1-\frac{1}{e})\ sq\ units$ d) $(1+\frac{1}{e})\ sq\ units$

24. The area bounded by the parabola $y^2 = 4x$ bounded by its latus rectum is

a) $\frac{16}{3}\ sq\ units$ b) $\frac{8}{3}\ sq\ units$ c) $\frac{72}{3}\ sq\ units$ d) $\frac{1}{3}\ sq\ units$

25. Area bounded by $y = |x|$ between the limits 0 and 2 is

a) 1 $sq\ units$ b) 3 $sq\ units$ c) 2 $sq\ units$ d) 4 $sq\ units$

CHAPTER 4

1.The degree of the differential equation $\frac{d^4y}{dx^4} - (\frac{d^2y}{dx^2})^4 + \frac{dy}{dx} = 3$

(a) 1 (b) 2 (c) 3 (d) 4

2. The order and degree of the differential equation $\sqrt{\frac{d^2y}{dx^2}} = \sqrt{\frac{dy}{dx} + 5}$ are respectively

(a) 2 and 3 (b) 3 and 2 (c) 2 and 1 (d) 2 and 2

3. The order and degree of the differential equation $(\frac{d^2y}{dx^2})^{\frac{3}{2}} - \sqrt{\frac{dy}{dx}} - 4 = 0$ are respectively

(a) 2 and 6 (b) 3 and 6 (c) 1 and 4 (d) 2 and 4

4. The differential equation $(\frac{dx}{dy})^3 + 2y^{\frac{1}{2}} = x$ is

(a) of order 2 and degree 1 (b) of order 1 and degree 3

(c) of order 1 and degree 6 (d) of order 1 and degree 2

5. The differential equation formed by eliminating a and b from $y = ae^x + be^{-x}$ is

a) $\frac{d^2y}{dx^2} - y = 0$ b) $\frac{d^2y}{dx^2} - \frac{dy}{dx} = 0$ c) $\frac{d^2y}{dx^2} = 0$ d) $\frac{d^2y}{dx^2} - x = 0$

6. If $y = cx + c - c^3$ then its differential equation is

a) $y = x\frac{dy}{dx} + \frac{dy}{dx} - (\frac{dy}{dx})^3$ b) $y + (\frac{dy}{dx})^3 = x\frac{dy}{dx} - \frac{dy}{dx}$ c) $\frac{dy}{dx} + y = (\frac{dy}{dx})^3 - x\frac{dy}{dx}$ d) $\frac{d^3y}{dx^3} = 0$

7. The integrating factor of the differential equation $\frac{dx}{dy} + px = Q$ is

a) $e^{\int pdx}$ b) $e^{\int pdx}$ c) $\int pdy$ d) $e^{\int pdy}$

8. The complementary function of $(D^2 + 4)y = e^{2x}$ is

a) $(Ax+B)e^{2x}$ b) $(Ax+B)e^{-2x}$ c) $Acos2x+Bsin2x$ d) $Ae^{-2x}+Be^{2x}$

9. The differential equation of $y=mx+c$ is (m and c are arbitrary constants)

a) $\frac{d^2y}{dx^2}=0$ b) $y=x\frac{dy}{dx}+c$ c)$xdy+ydx=0$ d) $ydx-xdy=0$

10. The particular integral of the differential equation is $\frac{d^2y}{dx^2}-8\frac{dy}{dx}+16y=2e^{4x}$

a) $\frac{x^2e^{4x}}{2!}$ b) $\frac{e^{4x}}{2!}$ c) x^2e^{4x} d) xe^{4x}

11. Solution of $\frac{dx}{dy}+Px=0$

a) $x=ce^{py}$ b) $x=ce^{-py}$ c) $x=py+c$ d) $x=cy$

12. If sec^2x is an integrating factor of the differential equation $\frac{dy}{dx}+py=Q$ then P=

(a) 2 tan x (b) sec x (c) cos^2x (d)tan^2x

13. The integrating factor of $x\frac{dy}{dx}-y=x^2$ is

a) $\frac{-1}{x}$ b) $\frac{1}{x}$ c) log x d) x

14. The solution of the differential equation $\frac{dy}{dx}+py=Q$ where P and Q are function of x is

a) $y=\int Q\ e^{\int pdx}dx+c$ b) $y=\int Q\ e^{-\int pdx}dx+c$

c) $ye^{\int pdx}=\int Q\ e^{\int pdx}dx+c$ d) $ye^{\int pdx}=\int Q\ e^{-\int pdx}dx+c$

15. The differential equation formed by eliminating A and B from $y=e^{-2x}(Acosx+Bsinx)$ is

a) $y_2-4y_1+5=0$ b) $y_2+4y_1-5=0$ c) $y_2-4y_1-5=0$ d) $y_2+4y_1+5=0$

16. The particular integral of the differential equation $f(D)y=e^{ax}$ where $f(D)=(D-a)^2$

a) $\frac{x^2}{2}e^{ax}$ b) xe^{ax} c) $\frac{x}{2}e^{ax}$ d) x^2e^{ax}

17. The differential equation of $x^2+y^2=a^2$

a) $xdy+ydx=0$ b) $ydx-xdy=0$ c) $xdx-ydx=0$ d) $xdx+ydy=0$

18. The complementary function of $\frac{d^2y}{dx^2}-\frac{dy}{dx}=0$ is

a) $A+Be^x$ b) $(A+B)e^x$ c) $(Ax+B)e^x$ d) Ae^x+B

19. The P.I. of $(3D^2+D-14)y=13e^{2x}$ is

a) $\frac{x}{2}e^{2x}$ b) xe^{2x} c) $\frac{x^2}{2}e^{2x}$ d) $13xe^{2x}$

20. The general solution of the differential equation $\frac{dy}{dx}=\cos x$ is

(a) $y = \sin x + 1$ b) $y = \sin x - 2$

c) $y = \cos x + c, c\ is\ arbitrary\ constant$ d) $y = \sin x + c, c\ is\ arbitrary\ constant$

21. A homogeneous differential equation of the form $\frac{dx}{dy} = f\left(\frac{y}{x}\right)$ can be solved by making substitution,

(a) y = v x (b) v = y x (c) x = v y (d) x = v

22. A homogeneous differential equation of the form $\frac{dx}{dy} = f\left(\frac{x}{y}\right)$ can be solved by making substitution,

(a) x = v y (b) y = v x (c) y = v (d) x = v

23. The variable separable form of $\frac{dy}{dx} = \frac{y(x-y)}{x(x+y)}$ by taking $y = vx$ and $\frac{dy}{dx} = v + x\frac{dv}{dx}$ is

a) $\frac{2v^2}{1+v}dv = \frac{dx}{x}$ b) $\frac{2v^2}{1+v}dv = -\frac{dx}{x}$ c) $\frac{2v^2}{1-v}dv = \frac{dx}{x}$ d) $\frac{1+v}{v^2}dv = -\frac{dx}{x}$

24. Which of the following is the homogeneous differential equation?

a) $(3x-5)dx = (4y-1)dy$ b) $xydx - (x^3+y^3)dy = 0$

c) $y^2dx = (x^2 - xy - y^2)dy = 0$ d) $(x^2+y)dx = (y^2+x)dy$

25. The solution of the differential equation $\frac{dy}{dx} = \frac{y}{x} + \frac{f(\frac{y}{x})}{f'(\frac{y}{x})}$ is

a) $f\left(\frac{y}{x}\right) = kx$ b) $x)\ f\left(\frac{y}{x}\right) = k$ c) $f\left(\frac{y}{x}\right) = ky$ d) $yf\left(\frac{y}{x}\right) = k$

chapter-5

1. $\Delta^2 y_0 =$

a) $y_2 - 2y_1 + y_0$ b) $y_2 + 2y_1 - y_0$ c) $y_2 + 2y_1 + y_0$ d) $y_2 + y_1 + 2y_0$

2. $\Delta f(x) =$

a) $f(x+h)$ b) $f(x) - f(x+h)$ c) $f(x+h) - f(x)$ d) $f(x) - f(x-h)$

3. $E \equiv$

a) $1 + \Delta$ b) a) $1 - \Delta$ c) a) $1 + \nabla$ d) a) $1 - \nabla$

4. If h=1,then $\Delta(x^2) =$

a) 2x b) 2x-1 c) 2x+1 d) 1

5. If c is a constant then $\Delta c =$

a) c b) Δ c) Δ^2 d) 0

6. If m and n are positive integers then $\Delta^m \Delta^n f(x) =$

a) $\Delta^{m+n}f(x)$ b) $\Delta^{m}f(x)$ c) $\Delta^{n}f(x)$ d) $\Delta^{m-n}f(x)$

7.If 'n' is a positive integer $\Delta^{n}[\Delta^{-n}f(x)]$

a) $f(2x)$ b) $f(x+h)$ c) $f(x)$ d) $\Delta f(x)$

8. $Ef(x) =$

a) $f(x-h)$ b) $f(x)$ c) $f(x+h)$ d)$f(x+2h)$

9. $\nabla \equiv$

a)$1+E$ b) $1-E$ c) $1-E^{-1}$ d) $1+E^{-1}$

10. $\nabla f(a) =$

a) $f(a)+f(a-h)$ b) $f(a)-f(a+h)$ c) $f(a)-f(a-h)$ d) $f(a)$

11. For the given points $(x_\circ, y_\circ) and\ (x_1, y_1)$ the Lagrange's formula is

a) $y(x)=\frac{x-x_1}{x_0-x_1}y_\circ+\frac{x-x_o}{x_1-x_0}y_1$ b) $y(x)=\frac{x_1-x}{x_0-x_1}y_\circ+\frac{x-x_o}{x_1-x_0}y_1$

c) $y(x)=\frac{x-x_1}{x_0-x_1}y_1+\frac{x-x_o}{x_1-x_0}y_0$ d) $y(x)=\frac{x_{1-x}}{x_0-x_1}y_1+\frac{x-x_o}{x_1-x_0}y_0$

12. Lagrange's interpolation formula can be used for

(a) equal intervals only (b) unequal intervals only

(c) both equal and unequal intervals (d) none of these.

13. If $f(x)=x^2+2x-2$ and the interval of differencing is unity then $\Delta f(x)$

a) 2x-3 b) 2x+3 c) x+3 d) x-3

14. For the given data find the value of $\Delta^3 y_0$ is

X	5	6	9	11
y	12	13	15	18

a) 1 b) 0 c) 2 d) -1

ANSWERS

Chapter 1

1	2	3	4	5	6	7	8	9	10
d	b	a	c	d	b	b	d	a	c
11	12	13	14	15	16	17	18	19	20
c	b	c	b	c	c	b	b	a	a not b
21	22	23	24	25					
b	c	d	c	a					

Chapter 2

1	2	3	4	5	6	7	8	9	10
b	c	a	a	a	b	b	a	d	c
11	12	13	14	15	16	17	18	19	20
b	b	b	b	c	d	c	c	b	a
21	22	23	24	25	26	27	28	29	30
b	b	c	a	a	a	b	d	b	c

Chapter 3

1	2	3	4	5	6	7	8	9	10
c	b	a	c	a	a	d	c	b	a
11	12	13	14	15	16	17	18	19	20
a	a	b	c	c	b	a	b	a	c
21	22	23	24	25					
a	c	a	b	c					

Chapter 4

1	2	3	4	5	6	7	8	9	10
a	c not d	a	b	a	a	d	c	a	c
11	12	13	14	15	16	17	18	19	20
b	a	b	c	d	a	d	a	b	d
21	22	23	24	25					
a	a	d	c	a					

Chapter 5

1	2	3	4	5	6	7	8	9	10
a	c	a	c	d	a	c	c	c	c
11	12	13	14						
a	c	b	b						

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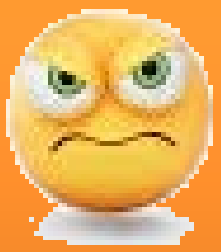

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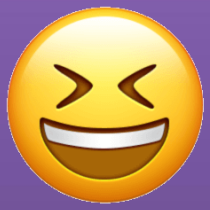

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