

Note: Based on the given material, a special test will be conducted in the 1st week of June.

- With each matrix, we can associate a non-negative integer called _____.
a) Rank b) determinant c) zero d) none of these
- A positive integer 'r' is said to be the rank of a non-zero if every minor of A of great than r is _____.
a) non-zero b) zero c) determinant d) 1
- The rank of a zero matrix is _____.
a) 0 b) n c) 1 d) 2
- The rank of a non-singular matrix of order nxn is _____.
a) 0 b) 1 c) 2 d) n
- The rank of matrix whose elements are equal to 1 is _____.
a) n b) 1 c) 2 d) 0
- The rank of matrix whose elements are equal to 2 is _____.
a) n b) 1 c) 2 d) 0
- If A is a square matrix of order 3 if A is of rank 2 then adjA is of rank is _____.
a) n b) 1 c) 2 d) 0
- The system of equations has either no solution or infinitely many solutions when _____.
a) $|A| \neq 0$ b) $|A|=1$ c) $|A|=0$ d) $|A| \neq 1$
A B
- If $T = \begin{matrix} A & (0.7 & 0.3) \\ B & (x & 0.8) \end{matrix}$ is a transition probability matrix, then the value of x is _____.
a) 0.3 b) 0.2 c) 0.8 d) 0.7

- A system of linear homogeneous equations has atleast _____.
a) one solution b) two solution c) three solution
d) four solutions
- If the square of the matrix $\begin{pmatrix} \alpha & \beta \\ \gamma & -\alpha \end{pmatrix}$ is the unit matrix of order 2. Then $\alpha_1 \beta$ and γ should satisfy the relation.
a) $1+\alpha^2+\beta\gamma=0$ b) $1-\alpha^2-\beta\gamma=0$ c) $1-\alpha^2+\beta\gamma=0$ d) $1+\alpha^2-\beta\gamma=0$
- If $A = \begin{pmatrix} 2 & 3 & 1 \\ 3 & 4 & 1 \\ 3 & 7 & 2 \end{pmatrix}$ then $A^{-1}A$ is _____.
a) 0 b) A c) 1 d) A^2
- If $A+I = \begin{pmatrix} 3 & -2 \\ 4 & 1 \end{pmatrix}$ then $(A+I)(A-I) =$ _____.
a) $\begin{pmatrix} -5 & -4 \\ 8 & -9 \end{pmatrix}$ b) $\begin{pmatrix} -5 & 4 \\ -8 & 9 \end{pmatrix}$ c) $\begin{pmatrix} 5 & 4 \\ 8 & 9 \end{pmatrix}$ d) $\begin{pmatrix} -5 & -4 \\ -8 & -9 \end{pmatrix}$
- If the points (x, -2) (5, 2) (8, 8) are collinear, then x= _____.
a) -3 b) $\frac{1}{3}$ c) 1 d) 3
- The value of x, for which the matrix $A = \begin{pmatrix} e^{x-2} & e^{7+x} \\ e^{2+x} & e^{2x+3} \end{pmatrix}$ is singular is _____.
a) 9 b) 8 c) 7 d) 6
- If $\int f(x)dx = g(x)+c$ then $\int f(x)g'(x)dx =$ _____.
a) $\int [f(x)]^2 dx$ b) $\int f(x)g(x)dx$ c) $\int f'(x)g(x)dx$ d) $\int (g(x))^2 dx$
- $\int \sin^3 x dx$ is _____.
a) $\frac{-3}{4} \cos x - \frac{\cos 3x}{12} + c$ b) $\frac{3}{4} \cos x + \frac{\cos 3x}{12} + c$ c) $\frac{-3}{4} \cos x + \frac{\cos 3x}{12} + c$
d) $\frac{-3}{4} \sin x - \frac{\sin 3x}{12}$
- $\int \tan^{-1} \sqrt{\frac{1-\cos 2x}{1+\cos 2x}} dx =$ _____.
a) x^2+c b) $2x^2+c$ c) $\frac{x^2}{2}+c$ d) $\frac{-x^2}{2}+c$

19. $\int 2^{3x+5} dx$ is _____

- a) $\frac{3(2^{3x+5})}{\log 2} + c$ b) $\frac{2^{3x+5}}{2 \log(3x+5)} + c$ c) $\frac{2^{3x+5}}{2 \log 3} + c$ d) $\frac{2^{3x+5}}{3 \log 2} + c$

20. $\int e^{-4x} \cos x dx$ is _____

- a) $\frac{e^{-4x}}{17}(4 \cos x - \sin x) + c$ b) $\frac{e^{-4x}}{17}(-4 \cos x + \sin x) + c$
 c) $\frac{e^{-4x}}{17}(4 \cos x + \sin x) + c$ d) $\frac{e^{-4x}}{17}(-4 \cos x - \sin x) + c$

21. If $f(x)$ is an even function then $\int_{-a}^a f(x) dx$ is _____

- a) $2 \int_0^a f(x) dx$ b) $\int_0^a f(x) dx$ c) $-2a$ d) $2a$

22. If $f(x)$ is odd function then $\int_{-a}^a f(x) dx =$ _____

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

23. $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin x dx$ is _____

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

24. $\int_0^{\infty} x^m e^{-\frac{x}{2}} dx$ is _____

- a) $2^{m+1} m!$ b) $2^m m!$ c) $2^{m+1} (m+1)!$ d) $2^m (m+1)!$

25. $\int \frac{\sqrt{\tan x} dx}{\sin 2x}$ is _____

- a) $\sqrt{\tan x} + c$ b) $2\sqrt{\tan x} + c$ c) $\frac{1}{2}\sqrt{\tan x} + c$ d) $\frac{1}{4}\sqrt{\tan x} + c$

26. If