04.07.2019 Everwin Matric Hr. Sec. School
STD: XI (E-I) Material of the month - July
Business Maths

1. A square matrix A is said to be singular , if $|A|$ = _____
a) 0 b) 1 c) 2 d) none of these
2. A^{-1} = _____
a) 0 b) $\frac{1}{|A|}$ c) $\frac{1}{|A|}adj\ A$ d) adj A
3. _____ is a number associated to a square matrix.
a) element b) determinant
c) unit matrix d) singular matrix
4. B is the _____matrix in Hawkins - Simon conditions.
a) square b) technology
c) singular d) non singular
5. If $\begin{vmatrix}2 & 4\\5 & 1\end{vmatrix}=\begin{vmatrix}2x & 4\\6 & x\end{vmatrix}$ then the value of x is
a) ± 3 b) ± 6 c) $\pm\sqrt{3}$ d) -3
6. The transpose of a column matrix is
a) zero matrix b) diagonal matrix
c) column matrix d) row matrix
7. If A is a symmetric matrix then A^T = _____
a) A b) $|A|$ c) 0 d) diagonal matrix
8. The transpose of a rectangular matrix is a _____
a) rectangular matrix b) diagonal matrix
c) square matrix d) scalar matrix
9. If $|A|$ = 0, then A is _____
a) zero matrix b) singular matrix
c) non - singular matrix d) 0
10. Expand the determinant $\begin{vmatrix}x & 0 & 0\\0 & x & 0\\0 & 0 & x\end{vmatrix}$
a) x b) x^2 c) x^3 d) 0
11. Evaluate $\begin{vmatrix}2 & 4\\-5 & -1\end{vmatrix}$
a) 10 b) 18 c) 20 d) 10
12. Evaluate $\begin{vmatrix}x & a & x+a\\y & b & y+b\\z & c & z+c\end{vmatrix}$
a) x b) a+b c) y+b d) 0
13. If two rows or columns are proportional then Δ = _____
a) 0 b) 1 c) -1 d) none of these
14. If A is any square matrix of order n, then A(Adj A) = (Adj A) A = _
a) $|A|$ b) I_n c) $|A|I_n$ d) $A(I_n)$
15. The inverse of the matrix A = $\begin{pmatrix}4 & 5\\2 & -3\end{pmatrix}$
a) $\begin{pmatrix}\frac{3}{22} & \frac{5}{22}\\\frac{1}{11} & \frac{-2}{11}\end{pmatrix}$ b) $\begin{pmatrix}3 & 5\\-1 & -2\end{pmatrix}$ c) $\begin{pmatrix}\frac{3}{22} & \frac{5}{22}\\\frac{1}{11} & \frac{2}{11}\end{pmatrix}$ d) $\begin{pmatrix}\frac{3}{22} & \frac{5}{22}\\\frac{1}{11} & \frac{-2}{11}\end{pmatrix}$
16. Matrix inversion method has a solution only when _____
a) $|A|$ =0 b) $|A| \neq 0$ c) adj A =0 d) none of these
17. The formula for matrix inversion method is
a) X = $\frac{1}{|A|}$ b) X = Adj A c) X = $\frac{1}{|A|}$ adj A d) X = $A^{-1}B$
18. The inverse of $\begin{pmatrix}2 & -1\\1 & 0\end{pmatrix}$ is
a) $\begin{pmatrix}0 & \frac{1}{3}\\\frac{-1}{3} & \frac{2}{3}\end{pmatrix}$ b) $\begin{pmatrix}0 & \frac{-1}{3}\\\frac{-1}{3} & \frac{2}{3}\end{pmatrix}$ c) $\begin{pmatrix}0 & 1\\-1 & 2\end{pmatrix}$ d) $\begin{pmatrix}0 & \frac{-1}{3}\\\frac{-1}{3} & \frac{-2}{3}\end{pmatrix}$
19. The cofactor of a_{ij} is defined as C_{ij} = _____
a) $(1)^{i+j}M_{ij}$ b) $(-1)^{i+j}M_{ij}$ c) $(1)^{i+j}$ d) $(1)^{ij}M_{ij}$
20. Hawkins Simon conditions are satisfied if $|I-B|$ is
a) 0 b) positive c) negative d) none of these
21. The number of Hawkins - Simon conditions for the viability of an input output method is
a) 1 b) 3 c) 4 d) 2
22. If A = $\begin{pmatrix}0.8 & 0.6\\-0.6 & 0.8\end{pmatrix}$ then A^{-1} is
a) $\begin{pmatrix}-0.8 & 0.6\\-0.6 & 0.8\end{pmatrix}$ b) $\begin{pmatrix}0.8 & -0.6\\0.6 & 0.8\end{pmatrix}$
c) $\begin{pmatrix}0.8 & 0.6\\0.6 & 0.8\end{pmatrix}$ d) $\begin{pmatrix}0.2 & 0.4\\-0.4 & 0.2\end{pmatrix}$
23. If A is a square matrix of order 3 then $|Adj\ A|$ is
a) $|A|^2$ b) $|A|$ c) $|A|^3$ d) $|A|^4$
24. The adjoint of $\begin{pmatrix}0 & 2\\2 & 0\end{pmatrix}$ is
a) $\begin{pmatrix}2 & 0\\0 & 2\end{pmatrix}$ b) $\begin{pmatrix}0 & -2\\-2 & 0\end{pmatrix}$ c) $\begin{pmatrix}1 & 0\\0 & 1\end{pmatrix}$ d) $\begin{pmatrix}0 & 2\\2 & 0\end{pmatrix}$
25. If AB = BA = $|A|$I then the matrix B is
a) the inverse of A b) the transpose of A
c) the adjoint of A d) 2A
26. If $|A|$ =0, then $|Adj\ A|$ is
a) 0 b) 1 c) -1 d) ± 1

27. I is the _____ matrix
a) scalar b) null c) diagonal d) unit

28. A square matrix A is said to be non - singular if _____
a) $|A| = 0$ b) $|A| \neq 0$ c) $A^{-1} = 0$ d) $A^{-1} \neq 0$

29. The cofactor is a signed _____
a) matrix b) determinant c)minor d) element

30. $(AB)^{-1}$ = _____
a) $A^{-1}B^{-1}$ b) AB c) $B^{-1}\ A^{-1}$ d) BA

31. The inverse of $\begin{pmatrix} 0 & 2 \\ 2 & 0 \end{pmatrix}$ is
a) $\begin{pmatrix} 0 & \frac{1}{2} \\ 2 & 0 \end{pmatrix}$ b) $\begin{pmatrix} 0 & \frac{1}{2} \\ \frac{1}{2} & 0 \end{pmatrix}$ c) $\begin{pmatrix} 0 & \frac{-1}{2} \\ \frac{1}{2} & 1 \end{pmatrix}$ d) $\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$

32. Evaluate $\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix}$
a) 0 b) -1 c) 1 d) 2

33. Minors of the elements of $\begin{vmatrix} 5 & 3 \\ -6 & 2 \end{vmatrix}$
a) 2, 6, 3, 5 b) 2, 6, -3, 5 c) 2, -6, 3, 5 d) 28

34. The inverse of A is denoted by
a) A^{-1} b) adjoint A c) $|A|$ d) none of these

35. Hawkins - Simon conditions ensure the _____ of the system.
a) technology matrix b) viability
c) non - viability d) solution

36. $|adj\ A|$ = _____
a) $|A|$ b)$|A|^{n-1}$ c) $|A|^n$ d) A^2

37. (adj B) (adj A) = _____
a) adj BA b) adj AB c) adjB+adj A d) adj A+adj B

38. Find x if $\begin{vmatrix} x & 2 & -1 \\ 2 & 5 & x \\ -1 & 2 & x \end{vmatrix} = 0$
a) x=3 or 1 b) x=-3 or -1 c) x=3 or -1 d) x=3 or 1

39. Evaluate $\begin{vmatrix} 10041 & 10042 & 10043 \\ 10045 & 10046 & 10047 \\ 10049 & 10050 & 10051 \end{vmatrix}$ is
a) 10045 b) 10069 c) 100045 d) 0

40. If A = $\begin{pmatrix} 1 & -1 \\ 2 & 3 \end{pmatrix}$ then A^{-1}
a) $\begin{pmatrix} \frac{3}{5} & \frac{1}{5} \\ \frac{-2}{5} & \frac{1}{5} \end{pmatrix}$ b) $\begin{pmatrix} \frac{3}{5} & \frac{-1}{5} \\ \frac{2}{5} & \frac{1}{5} \end{pmatrix}$ c) $\begin{pmatrix} \frac{-1}{5} & \frac{3}{5} \\ \frac{2}{5} & \frac{1}{5} \end{pmatrix}$ d) $\begin{pmatrix} \frac{3}{5} & \frac{-1}{5} \\ \frac{2}{5} & \frac{-1}{5} \end{pmatrix}$

41. If A = $\begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$ then $|2A|$ is
a) -24 b) 24 c) -4 d) 4

42. If A =$\begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$ then $8|A|$ is
a) 48 b) -48 c) -24 d) 0

43. Using matrix method find x and y for 2x+5y=1 and 3x+2y=7
a) x=3, 1 b) x=1, -3 c) x=3 and y=-1 d) no solution

44. If A = $\begin{bmatrix} 3 & -1 \\ 2 & -1 \end{bmatrix}$ and B = $\begin{bmatrix} 3 & 0 \\ 1 & -2 \end{bmatrix}$ then $|AB|$ is
a) -30 b) 30 c) 26 d) -26

45. If A = $\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$ then its $|A|$ = _____
a) $a_{11}a_{22}$-$a_{21}a_{12}$ b) $a_{12}a_{22}$-$a_{21}a_{12}$
c) $a_{11}a_{21}$-$a_{22}a_{12}$ d) $a_{11}a_{22} + a_{21}a_{12}$

46. If any two rows (columns) of a determinant are proportional then the value of the determinant is _____.
a) 3 b) 0 c) K d) 1

47. The adjoint of a square matrix A is defined as _____.
a) A_{ij}=(Adj A)^T b) Adj.A=A_{ij} c) Adj.A=[Aij]^T d) Aij=Adj.B

48. Adj (KA)=_____, n is the order of matrix A.
a) K^{n-1} Adj.A b) K adj.A c) K^n adj.A d) K$|A|$

49. The order of inverse of A will be the _____ as that of order of A.
a) different b) unique c) same d) not equal

50. In the equation X=(I-B)$^{-1}$D, the matrix B is known as _____.
a) Null Matrix b) Triangular Matrix
c) Technology Matrix d) Identity Matrix

51. Hawkins-Simon conditions is satisfied only if main diagonal elements in I-B is _____ and $|I - B|$ is _____.
a) Positive & Negative b) Negative & Negative
c) Positive & Positive d) Negative & Positive

52. (I-B)$^{-1}$=_____
a) $\frac{1}{|I-B|}$ adj(I-B) b) $\frac{adj\ (B-I)}{|B-I|}$ c) $\frac{|B|}{|B-I|}$ d) adj (I-B)