



**LORD  
KRISHNA**

Affiliated to CBSE  
**PUBLIC  
SCHOOL**  
Affiliation No. 530600

**12<sup>TH</sup> CLASS ASSIGNMENT**  
**TOPIC – Sexual REP in flowering plant**

**Q.1 Define the following terms:-**

- |                             |                      |
|-----------------------------|----------------------|
| a. Proximal end of filament | b. Dithecus          |
| c. Distal end of filament   | d. Microsporogenesis |

**Q.2 How many thica and pollen sac present in one lobe of an anther.**

**Q.3 Name the tissue which forms MMC.**

**Q.4 How many nucleus is present in tapetum cell.**

**Q.5 Name the structure which produces pollen kit, callase enzyme and ubisch granules.**

**Q.6 What is the shape of pollen sac, anther and generative cell.**

**Q.7 Which structure of anther is separated by longitudinal groove.**

**Q.8 Write the function of:-**

- |                           |            |
|---------------------------|------------|
| a. Epidermis, Endothecium | b. Tapetum |
|---------------------------|------------|

**Q.9 Name the changes/ events take place during:-**

- |                       |                  |                       |
|-----------------------|------------------|-----------------------|
| a. Pre- fertilization | b. Fertilisation | c. Post fertilization |
|-----------------------|------------------|-----------------------|

**Q.10 Name the two essential parts of flower.**

**Q.11 Differentiate between young anther and mature anther.**

**Q.12 Name the four layers of wall of anther.**

**Q.13 Write the function of:-**

- |                    |                    |           |
|--------------------|--------------------|-----------|
| a. Exine           | b. Generative cell | c. Intine |
| d. Vegetative cell | e. Tapetum         |           |

**Q.14 Write the another name of:-**

- |                    |              |               |        |
|--------------------|--------------|---------------|--------|
| a. Microsporangium | b. Tube cell | c. Parthenium | d. PMC |
|--------------------|--------------|---------------|--------|

**Q.15 Answer the following questions based on pollen grain:-**

- Size of pollen grain
- Chemical nature of exine.
- Chemical nature of intine.
- Number of cell before pollination.
- Number of cell after pollination.
- Large sized cell in pollen grain.
- Small sized cell in pollen grain.
- Which cell produce male gamete.
- Which cell produce pollen tube.
- Name the aperture on exine where sporopollenin absent.
- Example of plant causes pollen allergy.



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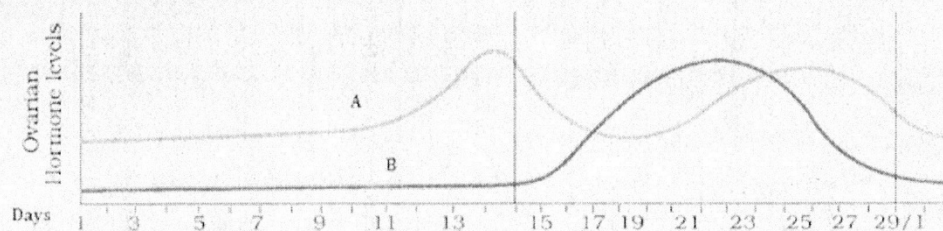
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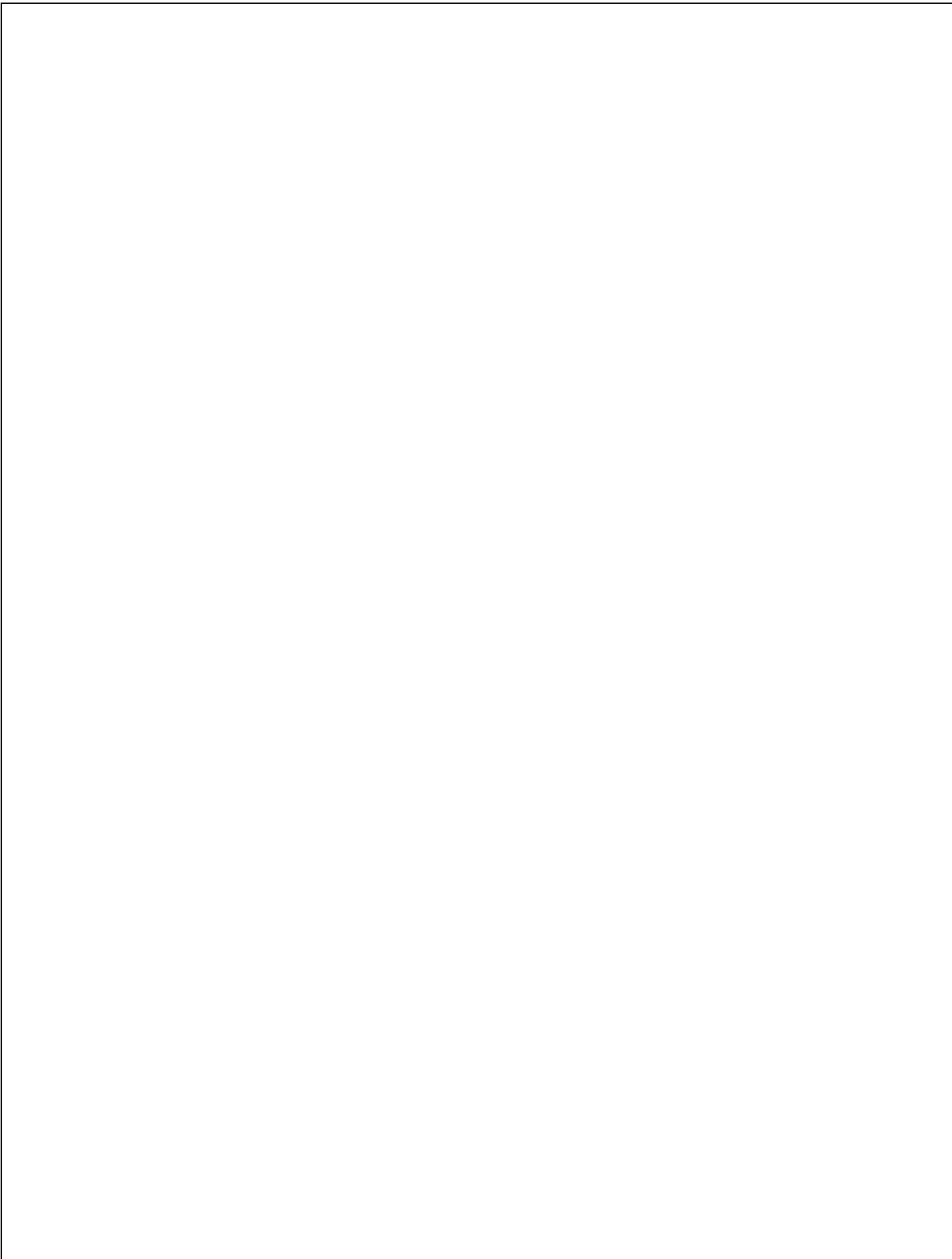
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1. Define :-
  - a. Spermeiogenesis.
  - b. Spermiation.
2. At what stage is meiosis -1 suspended in a primary oocyte.
3. Name the cells formed after meiosis-1 of the primary oocyte.
4. How many ova will be produced by one full grown primary oocyte.
5. Differentiate b/w spermatogenesis and oogenesis.
6. What is the chromosome number in following cells:-
  - a. Spermatogonia
  - b. Primary spermatocytes
  - c. Spermatids
  - d. Secondary spermatocyte
  - e. Ootid
  - f. Follicle cell
7. Describe the process of spermatogenesis upto the formation of spermatozoa.
8. Explain the hormonal control of spermatogenesis in human

1. Mention the relationship between pituitary and ovarian hormones during a menstrual cycle.
2. Mention the relationship between concentration of luteinizing hormone and maintenance of endometrium in the human uterus.
3. Write the physiological reason, why a woman generally cannot conceive a child after 50 years of age?
4. Answer the following :-
  - a. Explain the menstrual phase in a human female. State the levels of ovarian and pituitary hormones during this phase.
  - b. Why is follicular phase in the menstrual cycle also referred as proliferative phase? Explain ?
5. Answer the following in given graph:-
  - a. Identify 'A' and 'B'.
  - b. Specific the source of the hormone marked in the diagram.
  - c. Reason out: why A peaks before B?
  - d. Compare the role of A and B.







## Assignment

Class – 12<sup>th</sup>

Subject : Maths

1. If  $A = \begin{bmatrix} 3 & 4 \\ 2 & 3 \end{bmatrix}$ , find  $A + A'$ , where  $A'$  is the transpose of matrix  $A$ . [CBSE 2009]
2. If  $\begin{bmatrix} 15 & x+y \\ 2 & y \end{bmatrix} = \begin{bmatrix} 15 & 8 \\ x-y & 3 \end{bmatrix}$ . Find the value of  $x$ . [CBSE 2009]
3. If  $\begin{bmatrix} 2x & 1 \\ 5 & x+2y \end{bmatrix} = \begin{bmatrix} 4 & 1 \\ 5 & 0 \end{bmatrix}$ , find the value of  $y$ . [AICBSE 2009]
4. If  $A$  is a matrix of order  $3 \times 4$  and  $B$  is a matrix of order  $4 \times 3$ , find the order of the matrix  $(AB)$ . [CBSE 2010]
5. If  $\begin{bmatrix} a+b & 2 \\ 5 & b \end{bmatrix} = \begin{bmatrix} 6 & 5 \\ 2 & 2 \end{bmatrix}'$ , then find  $a$ . [CBSE 2010]
6. If  $\begin{bmatrix} x+y & 1 \\ 2y & 5 \end{bmatrix} = \begin{bmatrix} 7 & 1 \\ 4 & 5 \end{bmatrix}$ , then find  $x$ . [CBSE 2010]
7. If  $\begin{bmatrix} 3x & -1 \\ y-x & 4 \end{bmatrix} = \begin{bmatrix} 3 & -1 \\ -3 & 4 \end{bmatrix}$ , then find  $y$ . [CBSE 2010]
8. If  $A = \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$ , then for what value of  $\alpha$ ,  $A$  is an identity matrix. [CBSE 2010]
9. If  $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 3 & 1 \\ 2 & 5 \end{bmatrix} = \begin{bmatrix} 7 & 11 \\ k & 23 \end{bmatrix}$ , then write the value of  $k$ . [CBSE 2010]
10. Use elementary row operation, find the inverse of the following matrix :  

$$\begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$$
 [CBSE 2010]
11. If  $\begin{bmatrix} 3y-x & -2x \\ 3 & 7 \end{bmatrix} = \begin{bmatrix} 5 & -2 \\ 3 & 7 \end{bmatrix}$ , then find  $y$ . [AICBSE 2010]
12. If  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ , find  $A + A'$ . [AICBSE 2010]
13. Express  $\begin{bmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{bmatrix}$  as a sum of symmetric and skew-symmetric matrix and verify the result. [AICBSE 2010]

14. If  $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$ , then find the value of  $A^2 - 3A + 2I$ . [AICBSE 2010]

15. For the following matrices A and B, verify that  $(AB)' = B'A'$

$$A = \begin{bmatrix} 1 \\ -4 \\ 3 \end{bmatrix}, B = \begin{bmatrix} -1 & 2 & 1 \end{bmatrix}. \quad [\text{AICBSE 2010}]$$

16. Find the inverse of following matrix using elementary operation :

$$A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix} \quad [\text{AICBSE 2010}]$$

17. For a  $2 \times 2$  matrix,  $A = [a_{ij}]$ , whose elements are given by  $a_{ij} = \frac{i}{j}$ , write the value of  $a_{12}$ .

[CBSE 2011]

18. For what value of  $x$ , the matrix  $\begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$  is singular. [CBSE 2011]

19. Using elementary transformations, find the inverse of the matrix

$$\begin{bmatrix} 1 & 3 & -2 \\ -3 & 0 & -1 \\ 2 & 1 & 0 \end{bmatrix} \quad [\text{CBSE 2011}]$$

20. If  $A = \begin{bmatrix} 2 & 3 \\ 5 & -2 \end{bmatrix}$ , write  $A^{-1}$  in terms of A. [AICBSE 2011]

21. If a matrix has 5 elements, write all possible orders it can have. [AICBSE 2011]

22. Find the value of  $y - x$  from the following equation :

$$2 \begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix} \quad [\text{CBSE 2012}]$$

23. If  $\begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix} \begin{bmatrix} 1 & -3 \\ -2 & 4 \end{bmatrix} = \begin{bmatrix} -4 & 6 \\ -9 & x \end{bmatrix}$ , write the value of  $x$ . [CBSE 2012]

24. Simplify :  $\cos \theta \begin{bmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{bmatrix} + \sin \theta \begin{bmatrix} \sin \theta & -\cos \theta \\ \cos \theta & \sin \theta \end{bmatrix}$  [CBSE 2012]



25. If  $A' = \begin{bmatrix} 3 & 4 \\ -1 & 2 \\ 0 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} -1 & 2 & 1 \\ 1 & 2 & 3 \end{bmatrix}$ , then find  $A' - B'$ . [AICBSE 2012]

26. For a  $2 \times 2$  matrix  $A = [a_{ij}]$ , whose elements are given by  $a_{ij} = \frac{(i+2j)^2}{4}$ , write the value of  $a_{21}$ . [CBSE 2012 C]

27. For what value of  $x$ , the matrix  $\begin{bmatrix} 1+x & 7 \\ 3-x & 8 \end{bmatrix}$  is a singular matrix? [AICBSE 2012 C]

28. If  $\begin{bmatrix} 2x+1 & 2y \\ 0 & y^2+1 \end{bmatrix} = \begin{bmatrix} x+3 & 10 \\ 0 & 26 \end{bmatrix}$ , write the value of  $(x+y)$ . [AICBSE 2012 C]

29. Find the value of  $x+y$  from the following equation :

$$2 \begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix}.$$
 [AICBSE 2012 C]

30. If  $\begin{bmatrix} 9 & -1 & 4 \\ -2 & 1 & 3 \end{bmatrix} = A + \begin{bmatrix} 1 & 2 & -1 \\ 0 & 4 & 9 \end{bmatrix}$ , then find the matrix A. [CBSE 2013]

31. Find the value of  $b$ , if  $\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$ . [CBSE 2013]

32. If  $\begin{bmatrix} x-y & 2y \\ 2y+z & x+y \end{bmatrix} = \begin{bmatrix} 1 & 4 \\ 9 & 5 \end{bmatrix}$ , then write the value of  $(x+y+z)$ . [AICBSE 2013]

33. If matrix  $A = \begin{bmatrix} 3 & -3 \\ -3 & 3 \end{bmatrix}$  and  $A^2 = \lambda A$ , then write the value of  $\lambda$ . [AICBSE 2013]

34. For what value of  $x$ , is the matrix  $A = \begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{bmatrix}$  a skew-symmetric matrix? [AICBSE 2013]

35. If matrix  $A = \begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$  and  $A^2 = kA$ , then write the value of  $k$ . [AICBSE 2013]

36. If matrix  $A = \begin{bmatrix} 2 & -2 \\ -2 & 2 \end{bmatrix}$  and  $A^2 = pA$ , then write the value of  $p$ . [AICBSE 2013]

37. If  $2 \begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$ , then write the value of  $(x+y)$ . [CBSE 2013 C]

38. If  $2 \begin{bmatrix} 3 & 4 \\ 5 & x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$ , find  $(x - y)$ . [CBSE 2014]

39. If A is a square matrix such that  $A^2 = A$ , then prove that  $(I + A)^3 - 7A = I$ . [AICBSE 2014]

40. The elements  $a_{ij}$  of a  $3 \times 3$  matrix are given by  $a_{ij} = \frac{1}{2} |-3i + j|$ . Write the value of element  $a_{32}$ . [AICBSE 2014C]

41. If  $\begin{bmatrix} x - y & z \\ 2x - y & w \end{bmatrix} = \begin{bmatrix} -1 & 4 \\ 0 & 5 \end{bmatrix}$ , find the value of  $x + y$ . [AICBSE 2014]

42. Solve the following matrix equation for  $x$ :  $[x \ 1] \begin{bmatrix} 1 & 0 \\ -2 & 0 \end{bmatrix} = \mathbf{O}$ . [CBSE 2014]

43. If  $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$ , find  $A^2 - 5A + 4I$  and hence find a matrix X such that  $A^2 - 5A + 4I + X = \mathbf{O}$ . [CBSE 2015]

44. Write the element  $a_{23}$  of a  $3 \times 3$  matrix  $A = (a_{ij})$  whose elements  $a_{ij}$  are given by  $a_{ij} = \frac{|i - j|}{2}$ . [CBSE 2015]

45. To promote the making of toilets for women, an organisation tried to generate awareness through (i) house calls (ii) letters and (iii) announcements. The cost for each mode per attempt is given below :

(i) Rs. 50                      (ii) Rs. 20                      (iii) Rs. 40

The number of attempts made in three villages X, Y and Z are given below :

	(i)	(ii)	(iii)
X	400	300	100
Y	300	250	75
Z	500	400	150

Find the total cost incurred by the organisation for the three villages separately, using matrices. [AICBSE 2015]

46. Construct a matrix  $A = [a_{ij}]_{2 \times 2}$ , whose elements are given by  $a_{ij} = e^{2ix} \sin jx$ . [CBSE 2015]

47. If A is a square matrix such that  $A^2 = I$ , then find the simplified value of  $(A - I)^3 + (A + I)^3 - 7A$ . [CBSE 2016]

48. If  $A = \begin{bmatrix} \cos \alpha & \sin \alpha \\ -\sin \alpha & \cos \alpha \end{bmatrix}$ , find  $\alpha$  satisfying  $0 < \alpha < \frac{\pi}{2}$  when  $A + A^T = \sqrt{2} I_2$ ; where

$A^T$  is transpose of  $A$ .

[AICBSE 2016]

49. Show that all the diagonal elements of a skew-symmetric matrix are zero. [CBSE 2017]

50. If  $A$  is a skew-symmetric matrix of order 3, then prove that  $\det A = 0$ . [AICBSE 2017]

51. If the matrix  $A = \begin{bmatrix} 0 & a & -3 \\ 2 & 0 & -1 \\ b & 1 & 0 \end{bmatrix}$  is skew symmetric, find the values of 'a' and 'b'.

[CBSE 2018]

52. If  $A = \begin{bmatrix} 0 & 2 \\ 3 & -4 \end{bmatrix}$  and  $kA = \begin{bmatrix} 0 & 3a \\ 2b & 24 \end{bmatrix}$ , then find the values of  $k$ ,  $a$  and  $b$ . [CBSE 2019]

53. If  $3A - B = \begin{bmatrix} 5 & 0 \\ 1 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$ , then find the matrix  $A$ .

[AICBSE 2019; CBSE 2012C]

54. Find a matrix  $A$  such that  $2A - 3B + 5C = O$ , where  $B = \begin{bmatrix} -2 & 2 & 0 \\ 3 & 1 & 4 \end{bmatrix}$  and

$$C = \begin{bmatrix} 2 & 0 & -2 \\ 7 & 1 & 6 \end{bmatrix}.$$

[AICBSE 2019]

### SOME ADDITIONAL IMPORTANT QUESTIONS

55. Find  $X$  and  $Y$ , if  $2X + 3Y = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}$  and  $3X + 2Y = \begin{bmatrix} 2 & -2 \\ -1 & 5 \end{bmatrix}$ .

56. If  $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$  and  $f(x) = x^2 - 4x + 7$ , show that  $f(A) = O$ . Use this result to find  $A^5$ .

57. If  $A = \begin{bmatrix} 0 & -\tan \frac{\alpha}{2} \\ \tan \frac{\alpha}{2} & 0 \end{bmatrix}$  and  $I$  is the unit matrix of order  $2 \times 2$ ; show that

$$I + A = (I - A) \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}.$$

58. If  $A = \begin{bmatrix} a & b \\ 0 & 1 \end{bmatrix}$ ,  $a \neq 1$ , prove that  $A^n = \begin{bmatrix} a^n & \frac{b(a^n - 1)}{a - 1} \\ 0 & 1 \end{bmatrix}$ ,  $n \in \mathbb{N}$ .



59. Express the following matrix as the sum of a symmetric and a skew-symmetric matrix :

$$\begin{bmatrix} -1 & 7 & 1 \\ 2 & 3 & 4 \\ 5 & 0 & 5 \end{bmatrix}.$$

60. If A, B are square matrices of equal order and B is a skew-symmetric matrix, then write whether the matrix  $ABA'$  is symmetric or skew-symmetric.

61. If  $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$ , show that  $(a.I + b.A)^n = a^n I + n.a^{n-1}.b.A$  for all  $n \in \mathbb{N}$ .

62. Show that positive odd integral powers of a skew-symmetric matrix are skew-symmetric and positive even integral powers of a skew-symmetric matrix are symmetric.

63. If A and B are square matrices of the same order such that  $AB = BA$ , then prove by induction that  $AB^n = B^n A$ . Further, prove that  $(AB)^n = A^n B^n$  for all  $n \in \mathbb{N}$ .

8. Using matrices, solve following system of equations :

$$8x + 4y + 3z = 18$$

$$2x + y + z = 5$$

$$x + 2y + z = 5$$

[AICBSE 2009]

9. Using the properties of determinants, prove that if  $x, y, z$  are different and

$$\begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0, \text{ then } 1 + xyz = 0.$$

[AICBSE 2009]

10. Using matrices, solve the following system of equations :

$$x + y + z = 1$$

$$x - 2y + 3z = 2$$

$$x - 3y + 5z = 3$$

[AICBSE 2009]

11. If  $A = \begin{bmatrix} 3 & 1 \\ 2 & -3 \end{bmatrix}$ , then find  $|\text{adj. } A|$ .

[CBSE 2010]

12. Find the minor of the element of second row and third column ( $a_{23}$ ) in the following determinant

$$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$$

[CBSE 2010]

13. What is the value of the determinant :  $\begin{vmatrix} 0 & 2 & 0 \\ 2 & 3 & 4 \\ 4 & 5 & 6 \end{vmatrix}$  ?

[CBSE 2010]

14. If  $A$  is a square matrix of order 3 and  $|3A| = k|A|$ , then write the value of  $k$ .

[CBSE 2010]

15. Using properties of determinant, prove the following :

$$\begin{vmatrix} x & y & z \\ x^2 & y^2 & z^2 \\ x^3 & y^3 & z^3 \end{vmatrix} = xyz(x-y)(y-z)(z-x)$$

[CBSE 2010, 11]

16. Using properties of determinant, prove the following :

$$\begin{vmatrix} (b+c)^2 & ab & ca \\ ab & (a+c)^2 & bc \\ ac & bc & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3$$

[CBSE 2010]

17. If  $A = \begin{bmatrix} 3 & 2 & 1 \\ 4 & -1 & 2 \\ 7 & 3 & -3 \end{bmatrix}$ , then find  $A^{-1}$ .

Hence, solve the following system of equations :

$$3x + 2y + z = 6$$

$$4x - y + 2z = 5$$

$$7x + 3y - 3z = 7$$

[CBSE 2010]

18. If  $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 3 & 2 \\ 3 & -3 & -4 \end{bmatrix}$ , then find  $A^{-1}$ . Hence, solve the following system of equations :

$$x + 2y - 3z = -4$$

$$2x + 3y + 2z = 2$$

$$3x - 3y - 4z = 11$$

[CBSE 2010]

19. What positive value of  $x$  makes the following pair of determinants equal ?

$$\begin{vmatrix} 2x & 3 \\ 5 & x \end{vmatrix} = \begin{vmatrix} 16 & 3 \\ 5 & 2 \end{vmatrix}$$

[AICBSE 2010]

20. Write the adjoint of the following matrix :  $\begin{bmatrix} 2 & -1 \\ 4 & 3 \end{bmatrix}$

[AICBSE 2010]

21.  $A$  is a square matrix of order 3 and  $|A| = 7$ . Write the value of  $|\text{adj. } A|$ .

[AICBSE 2010]

22. Using properties of determinant, prove the following :

$$\begin{vmatrix} x & x^2 & 1 + px^3 \\ y & y^2 & 1 + py^3 \\ z & z^2 & 1 + pz^3 \end{vmatrix} = (1 + pxyz)(x - y)(y - z)(z - x).$$

[AICBSE 2010]

23. If  $a, b, c$  are positive and unequal, show that the following determinant is negative :

$$\Delta = \begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$$

[AICBSE 2010]

24. Determine the product  $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$  and use it to solve the system of equations,  $x - y + z = 4$ ;  $x - 2y - 2z = 9$  and  $2x + y + 3z = 1$ .

[CBSE 2010C, 2012]

25. Using properties of determinants, prove that

$$\begin{vmatrix} -a^2 & ab & ac \\ ba & -b^2 & bc \\ ca & cb & -c^2 \end{vmatrix} = 4a^2b^2c^2$$

[CBSE 2011]

26. Write  $A^{-1}$  for  $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$ .

[CBSE 2011]

27. Using matrix method, solve the following system of equations :

$$\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4, \quad \frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1, \quad \frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2; x, y, z \neq 0$$

[CBSE 2011]

28. Using properties of determinants, prove the following :

$$\begin{vmatrix} x+4 & 2x & 2x \\ 2x & x+4 & 2x \\ 2x & 2x & x+4 \end{vmatrix} = (5x+4)(4-x)^2.$$

[CBSE 2011]

29. Using properties of determinants, solve for  $x$  :

$$\begin{vmatrix} a+x & a-x & a-x \\ a-x & a+x & a-x \\ a-x & a-x & a+x \end{vmatrix} = 0.$$

[AICBSE 2011]

30. Using matrix method, solve the following system of linear equations :

$$x + 2y + z = 7$$

$$x + 3z = 11$$

$$2x - 3y = 1$$

[AICBSE 2011]

31. Evaluate :  $\begin{vmatrix} \cos 15^\circ & \sin 15^\circ \\ \sin 75^\circ & \cos 75^\circ \end{vmatrix}$ .

[AICBSE 2011]

32. Using properties of determinants, solve the following for  $x$  :

$$\begin{vmatrix} x-2 & 2x-3 & 3x-4 \\ x-4 & 2x-9 & 3x-16 \\ x-8 & 2x-27 & 3x-64 \end{vmatrix} = 0.$$

[AICBSE 2011]

33. Using properties of determinants, solve the following for  $x$  :

$$\begin{vmatrix} x+a & x & x \\ x & x+a & x \\ x & x & x+a \end{vmatrix} = 0.$$

[AICBSE 2011]



34. Using matrices, solve the following system of equations :

$$4x + 3y + 2z = 60$$

$$x + 2y + 3z = 45$$

$$6x + 2y + 3z = 70.$$

[AICBSE 2011]

35. Using matrices, solve the following system of equations :

$$x - y + 2z = 7, 3x + 4y - 5z = -5 \text{ and } 2x - y + 3z = 12.$$

[CBSE 2012]

36. Using properties of determinants, prove the following :

$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc \left[ 1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right] = ab + bc + ca + abc.$$

37. Using matrices, solve the following system of equations :

[CBSE 2012; AICBSE 2009]

$$x + y - z = 3; 2x + 3y + z = 10 \text{ and } 3x - y - 7z = 1.$$

38. Using matrices, solve the following system of equations :

[AICBSE 2012]

$$3x + 4y + 7z = 4; 2x - y + 3z = -3 \text{ and } x + 2y - 3z = 8.$$

39. Using properties of determinants, prove the following :

[AICBSE 2012]

$$\begin{vmatrix} \alpha & \beta & \gamma \\ \alpha^2 & \beta^2 & \gamma^2 \\ \beta + \gamma & \gamma + \alpha & \alpha + \beta \end{vmatrix} = (\alpha - \beta)(\beta - \gamma)(\gamma - \alpha)(\alpha + \beta + \gamma).$$

[CBSE 2012 C]

40. Using elementary operations, find the inverse of the following matrix :

$$\begin{bmatrix} -1 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$$

[CBSE 2012]

41. Using properties of determinants, prove that

$$\begin{vmatrix} b+c & a-b & a \\ c+a & b-c & b \\ a+b & c-a & c \end{vmatrix} = 3abc - a^3 - b^3 - c^3.$$

[AICBSE 2012 C]

42. If  $A = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$  are two square matrices, find AB and hence solve the system of equations  $x - y = 3$ ,  $2x + 3y + 4z = 17$  and  $y + 2z = 7$ .

[AICBSE 2012 C]

43. Using properties of determinants, prove the following :

$$\begin{vmatrix} a^2 & a^2 - (b-c)^2 & bc \\ b^2 & b^2 - (c-a)^2 & ca \\ c^2 & c^2 - (a-b)^2 & ab \end{vmatrix} = (a-b)(b-c)(c-a)(a+b+c)(a^2+b^2+c^2)$$

[AICBSE 2012 C]

44. If  $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ , find  $A^{-1}$  and hence solve the system of equations

$$2x - 3y + 5z = 11$$

$$3x + 2y - 4z = -5$$

$$x + y - 2z = -3$$

[AICBSE 2017, 12 C]

45. Using properties of determinants, prove the following :

$$\begin{vmatrix} a & b-c & c+b \\ a+c & b & c-a \\ a-b & b+a & c \end{vmatrix} = (a+b+c)(a^2+b^2+c^2).$$

[AICBSE 2012 C]

46. If  $A = \begin{bmatrix} 1 & 2 & 5 \\ 1 & -1 & -1 \\ 2 & 3 & -1 \end{bmatrix}$ , find  $A^{-1}$ . Hence, solve the following system of equations :

$$x + 2y + 5z = 10$$

$$x - y - z = -2$$

and

$$2x + 3y - z = -11.$$

[AICBSE 2012 C]

47. Using matrices, solve the following system of equations :

$$2x + 3y + 3z = 5; x - 2y + z = -4 \text{ and } 3x - y - 2z = 3.$$

[AICBSE 2012C]

48. Using properties of determinants, prove the following :

$$\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1-x^3)^2.$$

[CBSE 2013]

49. If  $A_{ij}$  is the co-factor of the element  $a_{ij}$  of the determinant

$$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}, \text{ then write the value of } a_{32} \cdot A_{32}.$$

[AICBSE 2013]

50. If  $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$ , then write the value of  $x$ .

[AICBSE 2013]

situations, at the rate of ₹  $x$ , ₹  $y$  and ₹  $z$  per person respectively. The first factory decided to honour respectively 2, 4 and 3 employees with a total prize money of ₹ 29,000. The second factory decided to honour respectively 5, 2 and 3 employees with the prize money of ₹ 30,500. If the three prizes per person together cost ₹ 9,500; then (i) Represent the above situation by a matrix equation and form linear equations using matrix multiplication. (ii) Solve these equations using matrices.

[AICBSE 2013C]

62. Prove that 
$$\begin{vmatrix} x+y & x & x \\ 5x+4y & 4x & 2x \\ 10x+8y & 8x & 3x \end{vmatrix} = x^3.$$

[AICBSE 2014, 09; CBSE 2002]

63. Two schools P and Q want to award their selected students on the values of discipline, politeness and punctuality. The school P wants to award Rs.  $x$  each, Rs.  $y$  each and Rs.  $z$  each for the three respective values to its 3, 2 and 1 students with a total award money of Rs. 1,000. School Q wants to spend Rs. 1,500 to award its 4, 1 and 3 students on the respective values (by giving the same award money for the three values as before). If the total amount of award for one prize on each value of Rs. 600, using matrices, find the award money for each value.

[CBSE 2014]

64. Prove that 
$$\begin{vmatrix} 2y & y-z-x & 2y \\ 2z & 2z & z-x-y \\ x-y-z & 2x & 2x \end{vmatrix} = (x+y+z)^3.$$

[CBSE 2014]

65. Write the value of 
$$\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix}.$$

[AICBSE 2014C]

66. A total amount of Rs. 7,000 is deposited in three different savings bank accounts with annual interest rates of 5%, 8% and  $8\frac{1}{2}\%$  respectively. The total annual interest from these three accounts is Rs. 550. Equal amounts have been deposited in the 5% and 8% savings accounts. Find the amount deposited in each of the three accounts, with the help of matrices.

[CBSE 2014 C]

67. If  $f(x) = \begin{vmatrix} a & -1 & 0 \\ ax & a & -1 \\ ax^2 & ax & a \end{vmatrix}$ , using properties of determinants find the value of  $f(2x) - f(x)$ .

[CBSE 2015]

68. Without expanding, prove that of the determinant vanishes: 
$$\begin{vmatrix} x+y & y+z & z+x \\ z & x & y \\ -3 & -3 & -3 \end{vmatrix}.$$

[AICBSE 2015]



51. Using properties of determinants, prove the following :

$$\begin{vmatrix} 3x & -x+y & -x+z \\ x-y & 3y & z-y \\ x-z & y-z & 3z \end{vmatrix} = 3(x+y+z)(xy+yz+zx) \quad [\text{AICBSE 2013}]$$

52. Using properties of determinants, prove the following :

$$\begin{vmatrix} x & x+y & x+2y \\ x+2y & x & x+y \\ x+y & x+2y & x \end{vmatrix} = 9y^2(x+y). \quad [\text{AICBSE 2013}]$$

53. For what value of  $x$ , the given matrix  $A = \begin{bmatrix} 3-2x & x+1 \\ 2 & 4 \end{bmatrix}$  is a singular matrix ?  
[AICBSE 2013 C]

54. If  $\begin{vmatrix} 2x & x+3 \\ 2(x+1) & x+1 \end{vmatrix} = \begin{vmatrix} 1 & 5 \\ 3 & 3 \end{vmatrix}$ , then write the value of  $x$ . [CBSE 2013 C]

55. If  $A$  is a square matrix of order 3 such that  $|\text{adj. } A| = 64$ , find  $|A|$ . [CBSE 2013 C]

56. Using properties of determinants, prove that

$$\begin{vmatrix} 1 & a & a^3 \\ 1 & b & b^3 \\ 1 & c & c^3 \end{vmatrix} = (a-b)(b-c)(c-a)(a+b+c). \quad [\text{CBSE 2013 C}]$$

57. Two institutions decided to award their employees for the three values of resourcefulness, competence and determination in the form of prizes at the rate of ₹  $x$ , ₹  $y$  and ₹  $z$  respectively per person. The first institution decided to award respectively 4, 3 and 2 employees with a total prize money of ₹ 37,000 and the second institution decided to award respectively 5, 3 and 4 employees with a total prize money of ₹ 47,000. If all the three prizes per person together amount to ₹ 12,000, then using matrix method find the value of  $x$ ,  $y$  and  $z$ . [CBSE 2013 C]

58. If  $A$  is an invertible square matrix of order 3 and  $|A| = 5$ , then find the value of  $|\text{adj. } A|$ .  
[AICBSE 2013 C]

59. Find the equation of the line joining  $A(1, 3)$  and  $B(0, 0)$  using determinants and find the value of  $k$  if  $D(k, 0)$  is a point such that area of  $\triangle ABD$  is 3 square units. [AICBSE 2013 C]

60. Using properties of determinants, prove that

$$\begin{vmatrix} a & b & c \\ a^2 & b^2 & c^2 \\ bc & ca & ab \end{vmatrix} = (a-b)(b-c)(c-a)(ab+bc+ca). \quad [\text{AICBSE 2013 C}]$$

61. Two factories decided to award their employees for three values of (a) adaptable to new techniques, (b) careful and alert in difficult situations and (c) keeping calm in tense



69. Prove that 
$$\begin{vmatrix} a^2 & bc & ac+c^2 \\ a^2+ab & b^2 & ac \\ ab & b^2+bc & c^2 \end{vmatrix} = 4a^2b^2c^2.$$

[AICBSE 2015]

70. If  $A = \begin{bmatrix} 1 & -2 & 3 \\ 0 & -1 & 4 \\ -2 & 2 & 1 \end{bmatrix}$ , find  $A^{-1}$  and hence find  $(A')^{-1}$ .

[CBSE 2015]

71. Prove that 
$$\begin{vmatrix} yz-x^2 & zx-y^2 & xy-z^2 \\ zx-y^2 & xy-z^2 & yz-x^2 \\ xy-z^2 & yz-x^2 & zx-y^2 \end{vmatrix}$$
 is divisible by  $(x+y+z)$  and hence find the quotient.

[CBSE 2016]

72. Using properties of determinants, prove that

$$\begin{vmatrix} (x+y)^2 & zx & zy \\ zx & (z+y)^2 & xy \\ zy & xy & (z+x)^2 \end{vmatrix} = 2xyz(x+y+z)^3.$$

[AICBSE 2016]

73. If  $A = \begin{bmatrix} 2 & 3 & 10 \\ 4 & -6 & 5 \\ 6 & 9 & -20 \end{bmatrix}$ , find  $A^{-1}$ . Using  $A^{-1}$  solve the system of equations

$$\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 2; \frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 5; \frac{6}{x} + \frac{9}{y} - \frac{20}{z} = -4.$$

[CBSE 2017]

74. Using properties of determinants, prove that 
$$\begin{vmatrix} a^2+2a & 2a+1 & 1 \\ 2a+1 & a+2 & 1 \\ 3 & 3 & 1 \end{vmatrix} = (a-1)^3.$$

[AICBSE 2017]

75. Using properties of determinants, prove that

$$\begin{vmatrix} 1 & 1 & 1+3x \\ 1+3y & 1 & 1 \\ 1 & 1+3z & 1 \end{vmatrix} = 9(3xyz + xy + yz + zx).$$

[CBSE 2018]

76. Given  $A = \begin{bmatrix} 2 & -3 \\ -4 & 7 \end{bmatrix}$ , compute  $A^{-1}$  and show that  $2A^{-1} = 9I - A$ .

[CBSE 2018]

77. If  $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ , find  $A^{-1}$ . Use it to solve the system of equations

$$2x - 3y + 5z = 11; 3x + 2y - 4z = -5; x + y - 2z = -3.$$

[CBSE 2018]

85. Find the inverse of the following matrix using elementary operations

$$A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$$

[AICBSE 2019]

### SOME ADDITIONAL IMPORTANT QUESTIONS

86. If  $x, y, z$  are in G.P., then using properties of determinants, show that

$$\begin{vmatrix} px+y & x & y \\ py+z & y & z \\ 0 & px+y & py+z \end{vmatrix} = 0, \text{ where } x \neq y \neq z \text{ and } p \text{ is any real number.}$$

87. Prove that

$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3$$

88. Using properties of determinants, prove the following :

$$\begin{vmatrix} \frac{(a+b)^2}{c} & c & c \\ a & \frac{(b+c)^2}{a} & a \\ b & b & \frac{(c+a)^2}{b} \end{vmatrix} = 2(a+b+c)^3.$$

89. Prove that

$$\begin{vmatrix} b^2c^2 & bc & b+c \\ c^2a^2 & ca & c+a \\ a^2b^2 & ab & a+b \end{vmatrix} = 0.$$

90. Prove that  $\Delta = \begin{vmatrix} a+bx & c+dx & p+qx \\ ax+b & cx+d & px+q \\ u & v & w \end{vmatrix} = (1-x^2) \begin{vmatrix} a & c & p \\ b & d & q \\ u & v & w \end{vmatrix}$

91. If  $a, b$  and  $c$  are real and  $\Delta = \begin{vmatrix} b+c & c+a & a+b \\ c+a & a+b & b+c \\ a+b & b+c & c+a \end{vmatrix} = 0$ , then show that either  $a+b+c=0$  or  $a=b=c$ .

78. Using elementary row transformations, find the inverse of the matrix

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ -2 & -4 & -5 \end{bmatrix}. \quad [\text{CBSE 2018}]$$

79. If  $A$  is a square matrix of order 3 with  $|A| = 4$ , then write the value of  $|-2A|$ .

[CBSE 2019]

80. Using properties of determinants, prove that

$$\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc. \quad [\text{CBSE 2019; AICBSE 2012C}]$$

81. If  $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & 3 \\ 1 & -2 & 1 \end{bmatrix}$ , find  $A^{-1}$ . Hence, solve the following system of equations :

$$x + y + z = 6,$$

$$y + 3z = 11$$

and

$$x - 2y + z = 0.$$

[CBSE 2019]

82. Find the inverse of the following matrix, using elementary transformations :

$$A = \begin{bmatrix} 2 & 3 & 1 \\ 2 & 4 & 1 \\ 3 & 7 & 2 \end{bmatrix}. \quad [\text{CBSE 2019}]$$

83. Using properties of determinants, prove the following :

$$\begin{vmatrix} a & b & c \\ a-b & b-c & c-a \\ b+c & c+a & a+b \end{vmatrix} = a^3 + b^3 + c^3 - 3abc. \quad [\text{AICBSE 2019}]$$

84. If  $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 2 \\ 3 & 1 & 1 \end{bmatrix}$ , find  $A^{-1}$ . Hence, solve the system of equations

$$x + y + z = 6$$

$$x + 2z = 7$$

$$3x + y + z = 12$$

[AICBSE 2019]

92. If  $A(x_1, y_1)$ ,  $B(x_2, y_2)$  and  $C(x_3, y_3)$  are the vertices of an equilateral triangle whose each

side is equal to  $a$ , then prove that 
$$\begin{vmatrix} x_1 & y_1 & 2 \\ x_2 & y_2 & 2 \\ x_3 & y_3 & 2 \end{vmatrix}^2 = 3a^4.$$

93. Prove that the equation of the line joining points  $(x_1, y_1)$  and  $(x_2, y_2)$  is given by

$$\begin{vmatrix} x & y & 1 \\ x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \end{vmatrix} = 0.$$

94. If  $a + b + c = 0$  and 
$$\begin{vmatrix} a-x & c & b \\ c & b-x & a \\ b & a & c-x \end{vmatrix} = 0,$$
 then show that either  $x = 0$  or

$$x = \pm \sqrt{\left(\frac{3}{2}\right)(a^2 + b^2 + c^2)}.$$

95. Show that  $A = \begin{bmatrix} 5 & 3 \\ -1 & -2 \end{bmatrix}$  satisfies the equation  $x^2 - 3x - 7 = 0$  and hence find  $A^{-1}$ .

96. Solve the following system of homogeneous equations :

$$3x + 2y + 7z = 0$$

$$4x - 3y - 2z = 0$$

$$5x + 9y + 23z = 0.$$





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**Assignment**

- प्र०.1 योजना से क्या अभिप्राय है?
- प्र०.2 टूर्नामेंट की परिभाषा दे।
- प्र०.3 फिक्सचर से आपका क्या अभिप्राय है?
- प्र०.4 नॉक – आउट टूर्नामेंट से क्या अभिप्राय है?
- प्र०.5 टूर्नामेंट के फिक्सचर में सीडीग क्या है?
- प्र०.6 बाई देने का सुत्र लिखे?
- प्र०.7 लीग या राउंड रॉबीन टूर्नामेंट क्या है?
- प्र०.8 एकल लीग और डबल लीग टूर्नामेंट में क्या अंतर है?
- प्र०.9 विभिन्न समितियों का वर्णन करें।
- प्र०.10 स्टाफिंग क्या है?
- प्र०.11 नॉक – आउट टूर्नामेंट में बाई देने की विधि की विवेचना किजिए।
- प्र०.12 नॉक – आउट टूर्नामेंट के लाभ व हानियाँ लिखे।
- प्र०.13 लीग टूर्नामेंट के लाभ व हानियाँ लिखे।
- प्र०.14 फिक्सचर तैयार करने की विधि क्या है?
- प्र०.15 टूर्नामेंट की अलग – अलग किस्मों को सूचीबद्ध करें।
- प्र०.16 24 टीमों का नॉक आउट फिक्सचर तैयार करें।
- प्र०.17 स्टेयरकेस विधि को अपनाते हुए लीग आधार पर वॉलीबाल की 9 टीमों का फिक्सचर तैयार करें।
- प्र०.18 प्रतियोगिता के दौरान आवश्यक कमेंटी या समितियों की सूची बनाओं।
- प्र०.19 आयोजन से क्या अभिप्राय है?
- प्र०.20 निर्देशन क्या है?



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**Assignment**

- प्र०.1 योजना से क्या अभिप्राय है?
- प्र०.2 टूर्नामेंट की परिभाषा दे।
- प्र०.3 फिक्सचर से आपका क्या अभिप्राय है?
- प्र०.4 नॉक – आउट टूर्नामेंट से क्या अभिप्राय है?
- प्र०.5 टूर्नामेंट के फिक्सचर में सीडीग क्या है?
- प्र०.6 बाई देने का सुत्र लिखे?
- प्र०.7 लीग या राउंड रॉबीन टूर्नामेंट क्या है?
- प्र०.8 एकल लीग और डबल लीग टूर्नामेंट में क्या अंतर है?
- प्र०.9 विभिन्न समितियों का वर्णन करें।
- प्र०.10 स्टाफिंग क्या है?
- प्र०.11 नॉक – आउट टूर्नामेंट में बाई देने की विधि की विवेचना किजिए।
- प्र०.12 नॉक – आउट टूर्नामेंट के लाभ व हानियाँ लिखे।
- प्र०.13 लीग टूर्नामेंट के लाभ व हानियाँ लिखे।
- प्र०.14 फिक्सचर तैयार करने की विधि क्या है?
- प्र०.15 टूर्नामेंट की अलग – अलग किस्मों को सूचीबद्ध करें।
- प्र०.16 24 टीमों का नॉक आउट फिक्सचर तैयार करें।
- प्र०.17 स्टेयरकेस विधि को अपनाते हुए लीग आधार पर वॉलीबाल की 9 टीमों का फिक्सचर तैयार करें।
- प्र०.18 प्रतियोगिता के दौरान आवश्यक कमेंटी या समितियों की सूची बनाओं।
- प्र०.19 आयोजन से क्या अभिप्राय है?
- प्र०.20 निर्देशन क्या है?



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**Physical Education**

**Assignment - 2**

- प्र०.1 मुद्रा क्या है? इसकी श्रेणियों का वर्णन करें।
- प्र०.2 घुटनों का टकराना या नॉक नीज से आप क्या समझते हैं?
- प्र०.3 बाहर की ओर मुड़ी हुई टांगे या बो – लेग्स से आप क्या समझते हैं?
- प्र०.4 चपटा पाँव या फ्लैट फुट से आप क्या समझते हैं?
- प्र०.5 गोल कंधे या राउंड शोल्डर्स से आप क्या समझते हैं?
- प्र०.6 रीढ़ की हड्डियों का टेढ़ा होने से आप क्या समझते हैं?
- प्र०.7 काइफोसिस क्या है?
- प्र०.8 लॉर्डोसिस से आप क्या समझते हैं?
- प्र०.9 रीढ़ की हड्डी के एक ओर झुके होने से आप क्या समझते हैं?
- प्र०.10 कूबड़ क्या है?
- प्र०.11 प्रथम रजोदर्शन को प्रभावित करने वाले कारकों के नाम बताइए।
- प्र०.12 रजोनिर्वृति क्या है?
- प्र०.13 मासिक चक्र क्या है?
- प्र०.14 अनियमित मासिक धर्म क्या है?
- प्र०.15 मासिक चक्र और खेल में भागीदारी क्या है?
- प्र०.16 आस्टियोपोरोसिस की परिभाषा लिखे!

प्र०.17 रजोरोध क्या है?

प्र०.18 खाने से संबंधित विकारों से आपका क्या भाव है?

प्र०.19 'महिला एथलीट त्रय' में ऋतुरोध क्या है?

प्र०.20 चपटे पैर को ठीक करने के लिए दो व्यायाम बतायें!





**LORD  
KRISHNA**

Affiliated to CBSE  
**PUBLIC  
SCHOOL**  
Affiliation No. 530600

**Class – 12<sup>th</sup>**

**Physical Education**

**Assignment**

1. योजना क्या है?
2. लीग टूर्नामेंट क्या है?
3. टूर्नामेंट की परिभाषा दें।
4. बाई देने का सूत्र बताओ।
5. सीडिंग क्या है?
6. प्रत्येक अर्ध में टीमों की गणना करने का सूत्र बताओं।
7. नॉक – आउट टूर्नामेंट में मैचों की संख्या ज्ञात करने का सूत्र बताओ।
8. बाइ फिक्स करने का सूत्र बताओं।
9. साइक्लिक क्या है?
10. स्टेयरकेस क्या है?
11. नॉक – आउट के आधार पर 19 टीमों का फिक्चर तैयार कीजिए।
12. प्रचार समिति क्या है?
13. प्राथमिक उपचार समिति क्या है?
14. फिक्सचर तैयार की विधि क्या है।
15. टूर्नामेंट्स कितने प्रकार के होते हैं।

