



7. If $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{x+y+z}$, the value of x which satisfies the equation $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{x+y+z}$, is

[EAMCET 1988; Karnataka CET 1991; MNR 1980; MP PET 1988, 99, 2001; DCE 2001]

- (a) $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$
- (b) $\frac{1}{x+y+z}$
- (c) $\frac{1}{x+y}$
- (d) $\frac{1}{y+z}$

8. The determinant $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$ is not equal to [MP PET 1988]

- (a) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (b) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (c) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (d) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$

9. If ω is the cube root of unity, then $1 + \omega + \omega^2 =$

[RPET 1985, 93, 94; MP PET 1990, 2002; Karnataka CET 1992; 93, 02, 05]

- (a) 1
- (b) 0
- (c) ω
- (d) ω^2

10. If $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{x+y+z}$, then the solution of the equation $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{x+y+z}$ is [UPSEAT 2001]

- (a) 0
- (b) $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$
- (c) $\frac{1}{x+y}$
- (d) $\frac{1}{y+z}$

11.

- (a) $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$
- (b) $\frac{1}{x+y+z}$
- (c) $\frac{1}{x+y}$
- (d) $\frac{1}{y+z}$

12. If $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{x+y+z}$, then $x =$ [MP PET 1991]

- (a) 1, 9
- (b) -1, 9
- (c) -1, -9
- (d) 1, -9

13. $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{x+y+z}$ [RPET 1990, 95]

- (a) $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$
- (b) $\frac{1}{x+y+z}$

Expansion of determinants, Solution of equation in the form of determinants and properties of determinants

1. $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$ [MNR 1987]

- (a) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (b) 0
- (c) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (d) None of these

2. $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$ [IIT 1988; MP PET 1990, 91; RPET 2002]

- (a) 0
- (b) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (c) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (d) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$

3. $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$ [RPET 1996]

- (a) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (b) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (c) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (d) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$

4. $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$ [Pb. CET 1997; DCE 2002]

- (a) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (b) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (c) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (d) None of these

5. The roots of the equation $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix} = 0$ are

[IIT 1987; MP PET 2002]

- (a) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (b) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (c) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (d) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$

6.

- (a) $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}$
- (b) e
- (c) 1
- (d) 0



- (c) (d) None of these
14. [IIT 1986; MNR 1985; MP PET 1998; Pb. CET 2003]
 (a) (b)
 (c) (d) 0
15. [Roorkee 1980; RPET 1997, 99; KCET 1999; MP PET 2001]
 (a) (b)
 (c) (d)
16. The roots of the equation are
 [MP PET 1989; Roorkee Qualifying 1998]
 (a) $0, -3$ (b) $0, 0, -3$
 (c) $0, 0, 0, -3$ (d) None of these
17. One of the roots of the given equation is
 [MP PET 1988, 2002; RPET 1996]
 (a) (b)
 (c) (d)
18. [MNR 1985; UPSEAT 2000]
 (a) 2 (b) -2
 (c) (d) None of these
19. [MP PET 1991]
 (a) (b)
 (c) (d)
20. [AMU 1979; RPET 1990; DCE 1999]
 (a) (b)
 (c) (d) None of these
21. [MP PET 1992]
 (a) (b)
 (c) 0 (d)
22. [MP PET 1991]
 (a) (b)
 (c) (d)
23. [MNR 1988]
 (a) (b)
 (c) 0 (d) None of these
24. [RPET 1990, 99]
 (a) (b)
 (c) (d) 0
25. [IIT 1980]
 (a) (b)
 (c) (d)
26. [RPET 1992; Kerala (Engg.) 2002]
 (a) (b)
 (c) (d)
27. If ω is a cube root of unity, then [MNR 1990; MP PET 1999]
 (a) (b)
 (c) (d)



28. If $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 1$, then $\begin{vmatrix} a & b \\ c & d \end{vmatrix}^{-1}$ is
- (a) $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$ (b) 1
 (c) $\begin{vmatrix} d & c \\ b & a \end{vmatrix}$ (d) $\begin{vmatrix} d & b \\ c & a \end{vmatrix}$ [Pb. CET 1998]
29. If -9 is a root of the equation $x^3 + 27 = 0$, then the other two roots are
- [IIT 1983; MNR 1992; MP PET 1995; DCE 1997; UPSEAT 2001]
- (a) $2, 7$ (b) $-2, 7$
 (c) $2, -7$ (d) $-2, -7$
30. If $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 1$, then which relation is correct
- (a) $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = \begin{vmatrix} d & c \\ b & a \end{vmatrix}$ (b) $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = \begin{vmatrix} d & b \\ c & a \end{vmatrix}$
 (c) $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = \begin{vmatrix} a & d \\ c & b \end{vmatrix}$ (d) None of these [MP PET 1990]
31. The value of the determinant $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$ is
- (a) $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$ (b) $\begin{vmatrix} d & c \\ b & a \end{vmatrix}$
 (c) $\begin{vmatrix} a & d \\ c & b \end{vmatrix}$ (d) $\begin{vmatrix} d & b \\ c & a \end{vmatrix}$ [MP PET 1990]
32. If a, b, c are unequal what is the condition that the value of the following determinant is zero
- $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ [IIT 1985; DCE 1999]
- (a) $a + b + c = 0$ (b) $a^2 + b^2 + c^2 = 0$
 (c) $a^2 + b^2 + c^2 = ab + bc + ca$ (d) None of these
33. If ω is a complex cube root of unity, then the determinant $\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix}$ is equal to
- [AMU 1992; Karnataka CET 2000; 03]
- (a) 0 (b) 1
 (c) -1 (d) None of these
34. The value of the determinant $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ is
- [MP PET 1990]
- (a) 0 (b) 187
 (c) 354 (d) 54
35. If $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 1$, then $\begin{vmatrix} a & b \\ c & d \end{vmatrix}^{-1}$ are in
- (a) A. P. (b) G. P.
 (c) H. P. (d) None of these
36. If ω be a complex cube root of unity, then $\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix}$ is
- (a) 0 (b) 1
 (c) -1 (d) -2
37. If $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 1$, then the value of t is
- (a) 16 (b) 18
 (c) 17 (d) 19 [IIT 1981]
38. The value of the determinant $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$ is
- (a) -75 (b) 25
 (c) 0 (d) -25 [RPET 1992]
39. The value of the determinant $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$ is
- [MP PET 1993; Karnataka CET 1994; Pb. CE 2004]
- (a) $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$ (b) $\begin{vmatrix} d & c \\ b & a \end{vmatrix}$
 (c) 0 (d) $\begin{vmatrix} a & d \\ c & b \end{vmatrix}$
40. If a, b and c are non zero numbers, then $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ is equal to
- [AMU 1992; Karnataka CET 2000; 03]
- (a) $a^3 + b^3 + c^3 - 3abc$ (b) $a^3 + b^3 + c^3 + 3abc$
 (c) $a^3 + b^3 + c^3 - 3abc$ (d) None of these
41. The determinant $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$, if a, b, c are in
- [IIT 1986, 97; MNR 1992; DCE 2000, 01; UPSEAT 2002]
- (a) A. P. (b) G. P.
 (c) H. P. (d) None of these



42. The value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) 12 (b) 24
(c) -12 (d) -24
- [MP PET 1992]
43. The value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) -2 (b) 0
(c) 81 (d) None of these
- [MNR 1991]
44. If $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, then the value of k is (a) -1 (b) 0
(c) 1 (d) None of these
- [IIT 1979]
45. The value of the determinant $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ is (a) abc (b) abc^2
(c) abc^3 (d) None of these
- [RPET 1986]
46. If $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, then $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} =$ (a) k (b) $2k$
(c) $3k$ (d) $4k$
- [RPET 1986]
47. The value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) 0 (b) abc
(c) abc^2 (d) None of these
- [RPET 1988]
48. The value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) 0 (b) abc
(c) abc^2 (d) None of these
- [RPET 1989]
49. The value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is equal to (a) 0 (b) 679
(c) 779 (d) 1000
- [RPET 1989]
50. If $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, then the value of $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ of A is (a) k (b) $2k$
(c) $3k$ (d) $4k$
- [IIT 1982]
51. Let $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, where k is a scalar, then $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is equal to (a) k (b) $2k$
(c) $3k$ (d) $4k$
52. The value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) -440 (b) 0
(c) 328 (d) 488
- [MP PET 1994]
53. Let $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, then $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) k (b) $2k$
(c) $3k$ (d) $4k$
- [IIT 1998]
54. If $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$ and $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$ are positive integers, then the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is divisible by (a) k (b) $2k$
(c) $3k$ (d) None of these
55. If $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, then the value of the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) 0 (b) abc
(c) 1 (d) None of these
56. Suppose $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$ and $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$, then $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix}$ is (a) k (b) $2k$
(c) $3k$ (d) $4k$
- [Karnataka CET 1993; Ph. CET 1993]
57. The roots of the equation $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{vmatrix} = k$ are (a) k (b) $2k$
(c) $3k$ (d) $4k$
- [Ph. CET 2001; Karnataka CET 1994]



- (a) (b) 0, 12, -12
(c) 0, 12, 16 (d) 0, 9, 16
58. If then $x =$ [Karnataka CET 1994] [Roorkee 1991; RPET 2001; J & K 2005]
(a) $-\frac{5}{2}$ (b) $-\frac{2}{5}$ (a) 6 (b) 3
(c) $\frac{5}{2}$ (d) $\frac{2}{5}$ (c) 0 (d) None of these
59. then [EAMCET 1992; DCE 2000]
(a) 1 (b) 2 (a) 0 (b)
(c) 3 (d) 4 (c) (d)
60. [EAMCET 1993] [Karnataka CET 1992]
(a) 0 (b) (a) 1, 2 (b) -1, 2
(c) pqr (d) (c) 1, -2 (d) -1, -2
61. (a) (b) (a) (b)
(c) (d) (c) (d)
62. [Karnataka CET 1991] (a) (b)
(a) 1 (b) 0 (c) (d)
(c) -1 (d) 67
63. [Karnataka CET 1991] [EAMCET 1991; UPSEAT 1999]
(a) 4 (b) (a) 0 (b) 1
(c) xyz (d) 0 (c) 2 (d)
64. The value of the determinant is equal to [Kurukshehra CEE 1998]
(a) -4 (b) 0 (a) 0 (b) 25
(c) 1 (d) 4 [Roorkee 1992] (c) 625 (d) None of these
65. A root of the equation is
(a) 6 (b) 3
(c) 0 (d) None of these
66. [EAMCET 1994]
(a) 0 (b)
(c) (d)
67. The roots of the equation are
(a) 1, 2 (b) -1, 2
(c) 1, -2 (d) -1, -2
68. is equal to
(a)
(b)
(c)
(d)
69. The roots of the determinant equation (in x) [EAMCET 1993]
(a) (b)
(c) (d)
70. [EAMCET 1991; UPSEAT 1999]
(a) 0 (b) 1
(c) 2 (d)
71. If , then
(a) 0 (b) 25
(c) 625 (d) None of these
72. The value of is equal to



- [Kerala (Engg.) 2001]**
- (a) (b)
(c) (d)
73. If are different and , then
[EAMCET 1989]
(a) (b)
(c) (c)
74. If then
[Kurukshestra CEE 1996, 98, 2002; RPET 1997; MP PET 1998, 99; Tamilnadu (Engg.) 2002]
(a) -4 (b) 2
(c) 4 (d) 8
75. [MP PET 1996]
(a) 1 (b) 0
(c) 3 (d)
76. The value of the determinant is then the value of is [RPET 2000]
[Pb. CET 2003]
(a) (b) (a) 0 (b) abc
(c) (d) (c) $-abc$ (d) None of these
77. [MP PET 1996]
(a) 0 (b) -39
(c) 96 (d) 57
78. If and then [MP PET 1998]
[RPET 2000]
(a) are in A. P. (b) are in G. P.
(c) are in H. P. (d) None of these
79. If , then $x =$ [RPET 1996]
(a) -14 (b) 2
(c) 6 (d) 7
80. If then the values of x are
[RPET 1997]
(a) 0, 2/3 (b) 2/3, 11/3
- (c) 1/2, 1 (d) 11/3, 1
81. If are in A.P., then the value of is [RPET 1999]
(a) (b)
(c) (d) 0
82. If then equals [RPET 1999]
(a) (b)
(c) (d) None of these
83. If satisfy then [EAMCET 2000]
(a) (b) 0
(c) (d)
84. If such that , [RPET 2000]
(a) (b) 0
(c) (d)
85. is divisor of [RPET 2000]
(a) (b)
(c) (d)
86. is not depend [RPET 2000]
(a) On x
(b) On n
(c) Both on x and n
(d) None of these
87. The sum of the products of the elements of any row of a determinant A with the same row is always equal to [Karnataka CET 2000]
(a) 1 (b) 0
(c) $|A|$ (d)



88. The value of the determinant given below is _____, which of the following is a factor for the above determinant [UPSEAT 2000] [Tamilnadu (Engg.) 2002]
- (a) 20 (b) 10 (a) (b)
 (c) 0 (d) 5 (c) (d)
89. If _____; then _____ are in _____ [AMU 2000]
- (a) A. P. (b) G. P. (a) (b)
 (c) H. P. (d) None of these (c) (d)
90. If _____ and _____, then one of the value of x is _____ [AMU 2000]
- (a) (b) (a) (b)
 (c) (d) None of these (c) (d) None of these
91. If _____, then _____ is _____ [IIT Screening 2002]
- (a) (b) (a) (b)
 (c) (d) (c) (d)
92. If _____ and _____, then B is given by _____ [Tamilnadu (Engg.) 2002]
- (a) (b) (a) (b)
 (c) (d) (c) (d)
93. If _____; then the value of _____ is _____ [Tamilnadu (Engg.) 2002]
- (a) 5 (b) 25 (a) (b)
 (c) 125 (d) 0 (c) (d)
94. _____, which of the following is a factor for the above determinant [Tamilnadu (Engg.) 2002]
- (a) (b) (a) (b)
 (c) (d) (c) (d)
95. The value of _____ is _____ [DCE 2000, 01]
- (a) (b) (a) (b)
 (c) (d) (c) (d) None of these
96. At what value of _____ will _____ [IIT Screening 2002]
- (a) (b) (a) (b)
 (c) (d) (c) (d) None of these
97. Let _____ . Then the value of the determinant _____ [IIT Screening 2002]
- (a) (b) (a) (b)
 (c) (d) (c) (d)
98. If _____, then the value of k is _____ [Tamilnadu (Engg.) 2001]
- (a) -1 (b) 1 (a) -1 (b) 1
 (c) 2 (d) -2 (c) 2 (d) -2
99. The value of _____ [Karnataka CET 2001]
- (a) 2 (b) 4 (a) 2 (b) 4
 (c) 0 (d) 1 (c) 0 (d) 1
100. If A, B, C be the angles of a triangle, then _____ [Karnataka CET 2002]
- (a) 1 (b) 0 (a) 1 (b) 0
 (c) (d) (c) (d)



101. [RPET 2002] are [MP PET 2003]
- (a) (b) (a) (b)
 (c) (d) 3 (c) (d)
102. [RPET 2002] 110. If , then $x =$ [RPET 2003]
- (a) 0 (b) abc (a) 0 (b) 2
 (c) $1/abc$ (d) None of these (c) 3 (d) 1
103. [UPSEAT 2002; AMU 2005] 111. The roots of the equation are equal to [Pb. CET 2000]
- (a) 0 (b) (a) (b)
 (c) (d) None of these (c) (d)
104. The determinant is equal to zero if are in 112. The value of if is equal to [Pb. CET 2002]
- [UPSEAT 2002] (a) (b)
 (a) G. P. (c) (d)
 (b) A. P.
 (c) H. P.
 (d) None of these
105. If then x is [Kerala (Engg.) 2002] 113. , then x is equal to [Pb. CET 2002]
- (a) $0, -6$ (b) $0, 6$ (a) 3 (b) 5
 (c) 6 (d) -6 (c) 7 (d) 9
106. Solution of the equation are is [MP PET 2004]
- [AMU 2002] (a) (b)
 (c) (d)
107. The values of the determinant is [UPSEAT 2003] 115. The value of is [Karnataka CET 2004]
- (a) (b) (a) 1 (b) 0
 (c) 1 (d) 0 (c) (d)
108. The value of is [Kerala (Engg.) 2001] 116. The value of is [Karnataka CET 2004]
- (a) 8 (b) -8 (a) $441 \times 446 \times 451$ (b) 0
 (c) 400 (d) 1 (c) -1 (d) 1



(e)

117. If a, b, c are all different and $\dots = 0$, then the

value of \dots is \dots [Kurukshehra CEE 2002]

- (a) \dots
- (b) 0
- (c) \dots
- (d) \dots

118. If

and \dots then $f(x)$ is a

polynomial of degree \dots [AIIEEE 2005]

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

119. The determinant \dots is not divisible by

[J & K 2005]

- (a) x
- (b) \dots
- (c) \dots
- (d) \dots

120. The value of the determinant \dots is

equal to \dots [J & K 2005]

- (a) \dots
- (b) \dots
- (c) 0
- (d) \dots

121. The solutions of the equation \dots are

[Karnataka CET 2005]

- (a) \dots
- (b) \dots
- (c) 3, 1
- (d) \dots

122. \dots then \dots equal to

[Orissa JEE 2005]

- (a) 1/2
- (b) 1
- (c) -1/2
- (d) -1

123. If \dots then

$\dots = \dots$ [Kerala (Engg.) 2005]

- (a) \dots
- (b) $f(3)$
- (c) \dots
- (d) \dots

124. If \dots , then the value of k is

[AMU 2005]

- (a) 2
- (b) 4
- (c) 6
- (d) 8

Minors and Co-factors, Product of determinants

1. The cofactor of the element '4' in the determinant

\dots is \dots [MP PET 1987]

- (a) 4
- (b) 10
- (c) -10
- (d) -4

2. If \dots and \dots denote the co-factors of

\dots respectively, then the value of the determinant

\dots is \dots [MP PET 1989]

- (a) \dots
- (b) \dots
- (c) \dots
- (d) 0

3. If in the determinant \dots , etc. be the

co-factors of \dots etc., then which of the following relations is incorrect

- (a) \dots
- (b) \dots
- (c) \dots
- (d) \dots

4. If \dots is a cube root of unity and \dots , then \dots is equal

to \dots [RPET 1984]

- (a) \dots
- (b) \dots
- (c) 1
- (d) \dots

5. If \dots and \dots , then \dots is equal to

[RPET 1984]



- (a) ac (b) bd
 (c) (d) None of these
6. If are respectively the co-factors of the elements
 ,..... of the determinant
 , then
- (a) (b)
 (c) (d) None of these
7. Let be a square matrix and let be cofactor of
 in A . If , then
- (a) (b)
 (c) (d) None of these
8. =
 [Tamilnadu (Engg.) 2002]
- (a) 7 (b) 10
 (c) 13 (d) 17
9. If then cofactors of the elements of 2nd
 row are [RPET 2002]
- (a) (b)
 (c) (d)
10. The minors of -4 and 9 and the co-factors of -4 and 9 in
 determinant are respectively [J & K 2005]
- (a) $42, 3 ; -42, 3$ (b) $-42, -3 ; 42, -3$
 (c) $42, 3 ; -42, -3$ (d) $42, 3; 42, 3$

**System of linear equations, Some special
 determinants,
 differentiation and integration of determinants**

1. The following system of equation ,
 , has a solution other than
 for equal to [MP PET 1990]
- (a) 1 (b) 2
 (c) 3 (d) 5
2. If , then $x =$
 [MP PET 1987]

- (a)
 (b)
 (c)
 (d) None of these
3. and has
 non-zero solution for $k =$ [IIT 1988]
- (a) -1 (b) 0
 (c) 1 (d) 2
4. The number of solutions of equations ,
 is [MP PET 1992]
- (a) 0 (b) 1
 (c) 2 (d) Infinite
5. If has non
 zero solution, then [MP PET 1990]
- (a) -1 (b) 0
 (c) 1 (d) -3
6. The number of solutions of the equations
 is [MP PET 1992]
- (a) 0 (b) 1
 (c) 2 (d) Infinite
7. If then the value of
 at is
- (a) -1 (b) 0
 (c) 1 (d) Dependent of a
8. The value of a for which the system of equations

- has a non zero solution is [Pb. CET 2000]
- (a) -1 (b) 0
 (c) 1 (d) None of these
9. If
 and then the given system has
 [Roorkee 1990]
- (a) One trivial and one non-trivial solution
 (b) No solution



- (c) One solution
- (d) Infinite solution