

Subject: Mathematics

Roll No.:

Questions: 25 Time: 01:45 hh:mm Marks: 50

Instructions

1. New section on new page
2. Rough work at the last page should be in proper manner too
3. Honesty is the best policy.

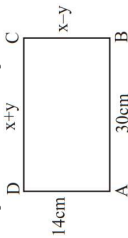
SECTION-A

- Q1.** The roots of the equation $x^2 + x - p(p+1) = 0$, where p is a constant, are:
A $p, p+1$ **B** $-p, p+1$ **C** $p, -(p+1)$ **D** $-p, -(p+1)$ **1 Mark**
- Q2.** The value of λ for which $(x_2 + 4x + \lambda)$ is a perfect square, is:
A 16 **B** 9 **C** 1 **D** 4 **1 Mark**
- Q3.** The roots of the equation $x^2 - 3x - m(m+3) = 0$, where m is a constant, are:
A $m, m+3$ **B** $-m, m+3$ **C** $m, -(m+3)$ **D** $-m, -(m+3)$ **1 Mark**
- Q4.** Which of the following is a quadratic polynomial with zeroes $\frac{5}{3}$ and 0?
A $3x(3x-5)$ **B** $3x(x-5)$ **C** $\frac{3}{2}x^2$ **D** $\frac{3}{2}x^2$ **1 Mark**
- Q5.** Which of the following is not probability of an event?
A 0.89 **B** 52% **C** $\frac{1}{13}\%$ **D** $\frac{1}{0.89}$ **1 Mark**
- Q6.** If one of the zeroes of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is:
A 10 **B** -10 **C** -7 **D** -2 **1 Mark**
- Q7.** The value(s) of k for which the quadratic equation $2kx^2 + kx + 2 = 0$ has equal roots, is:
A 4 **B** ± 4 **C** -4 **D** 0 **1 Mark**
- Q8.** Find the values of k for each of the following quadratic equation, so that they have two equal roots.
 $kx(x-2) + 6 = 0$ **1 Mark**

- Q9.** If the quadratic equation $px^2 - 2\sqrt{5}px + 15 = 0$ has two equal roots, then find the value of p . **1 Mark**
- Q10.** If 1 is a zero of the polynomial $p(x) = ax^2 - 3(a-1)x - 1$, then find the value of a . **1 Mark**
- Q11.** Find the discriminant of the quadratic equation $3\sqrt{3}x^2 + 10x + \sqrt{3} = 0$. **1 Mark**
- Q12.** Check whether the following are Quadratic Equation.
 $(x+1)^2 = 2(x-3)$ **1 Mark**

SECTION-B

- Q13.** Solve for x : $\sqrt{2x+9} + x = 13$ **2 Marks**
- Q14.** Find the quadratic polynomial sum of whose zeros is 8 and their product is 12. Hence, find the zeros of the polynomial. **2 Marks**
- Q15.** In figure, ABCD is a rectangle. Find the values of x and y . **2 Marks**



- Q16.** Find the value of k for which the equation $x^2 + k(2x + k - 1) + 2 = 0$ has real and equal roots. **2 Marks**
- Q17.** Solve for s : $\sqrt{6x+7} - (2x-7) = 0$ **2 Marks**
- Q18.** If -5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and the quadratic equation $p(x^2 + x) + k = 0$ has equal roots, find the value of k . **2 Marks**
- Q19.** Find the roots of the following equation:
 $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}$; $x \neq -4, 7$ **3 Marks**
- Q20.** If the quadratic equation $(c^2 - ab)x^2 - 2(a^2 - bc)x + b^2 - ac = 0$ in x , has equal roots, then show that either $a = 0$ or $a^3 + b^3 + c^3 = 3abc$. **3 Marks**
- Q21.** If the roots of the equation $(a^2 + b^2)x^2 - 2(ac + bd)x + (c^2 + d^2) = 0$ are equal, prove that $\frac{a}{b} = \frac{c}{d}$. **3 Marks**

SECTION-C

- Q22.** Find the roots of the equation $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}$, $x \neq -4, 7$. **4 Marks**