Model Question Paper

Algebra - Part III

10th Standard

Maths

Reg.No. : | | | | | | |

I.Answer all the questions.

II.Use Blue pen only.

Time : 01:00:00 Hrs

Total Marks : 60

Section-A

5 x 1 = 5

1) The LCM of a^k, a^{k+1}, a^{k+5} where $k \epsilon N$ is

(a) a^{k+9} (b) a^k (c) a^{k+6} (d) a^{k+5}

2) The lowest form of the rational expression $\frac{x^2+5x+6}{x^2-x-6}$ is

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

3) If $\frac{a+b}{a-b} and \frac{a^3-b^3}{a^3+b^3}$ are the two rational expressions, then their product is

(a) $\frac{a^2+ab+b^2}{a^2-ab+b^2}$ (b) $\frac{a^2-ab+b^2}{a^2+ab+b^2}$ (c) $\frac{a^2-ab-b^2}{a^2+ab+b^2}$ (d) $\frac{a^2+ab+b^2}{a^2-ab-b^2}$

4) On dividing $\frac{x^2-25}{x+3} by \frac{x+5}{x^2-9}$ is equal to

(a) $(x-5)(x-3)$ (b) $(x-5)(x+3)$ (c) $(x+5)(x-3)$ (d) $(x+5)(x+3)$

5) If $\frac{a^3}{a-b}$ is added with $\frac{b^3}{b-a}$, then the new expression is

(a) a^2+ab+b^2 (b) a^2-ab+b^2 (c) a^3+b^3 (d) a^3-b^3

Section-B

8 x 2 = 16

6) Solve the system of equations by elimination method. $x+2y=7, x-2y=1$

7) Solve the system of equations by elimination method. $3x+y=8, \quad 5x+y=10$

8) Solve the system of equations by elimination method. $x+\frac{y}{2}=4, \quad \frac{x}{3}+2y=5$

9) Solve the system of equations by elimination method. $11x-7y=xy, \quad 9x-4y=6xy$

10) Find the zeros of the following quadratic polynomials and verify the basic relationships between the zeros and the coefficients. x^2-2x-8

11) Find a quadratic polynomial each with the given numbers as the sum and product of its zeros respectively. 3,1

12) Find the quotient and remainder using synthetic division. $\left(x^3+x^2-3x+5\right) \div (x-1)$

13) Find the greatest common divisor of $7x^2yz^4, \quad 21x^2y^5z^3$

Section-C

6 x 5 = 30

14) Solve the quadratic equation $5x^2-6x-2=0$ by completing the square.

15) Solve the equation $a^2x^2-3abx+2b^2=0$ by completing the square

16) Solve the equation $\frac{1}{x+1}+\frac{2}{x+2}=\frac{4}{x+4}$, where $x+1 \neq 0, x+2 \neq 0 \quad and \quad x+4 \neq 0$ using quadratic formula.

17) The base of a triangle is 4 cm longer than its altitude. If the area of the triangle is 48 sq. cm, then find its base and altitude.

18) A car left 30 minutes later than the scheduled time. In order to reach its destination 150 km away in time, it has to increase its speed by 25 km/hr from its usual speed. Find its usual speed.

19) a) Find the GCD of the following $c^2-d^2, \quad c(c-d)$

b) Find the LCM of the following. x^3y^2, xyz

****