Q1. Find the zeroes of the following quadratic polynomial : (i) x^2+5x+6 (ii) x^2-5x+6 (iii) x^2+5x-6 (iv) x^2-5x-6 Ans. (i) $-2,-3$ (ii) $2,3$ (iii) $-6,1$ (iv) $6,-1$

Q2. If $x=2+\sqrt{3}$, then find the value of $x+\frac{1}{x}$. Ans. 4

Q3. If $x=3+\sqrt{8}$, then find the value of $x+\frac{1}{x}$. Ans. 6

Q4. If α *and* β *are the zeroes of the polynomial* x^2-7x+k *. Find the value of* k, *if* $\alpha-\beta=1$ Ans. k = 12

Q5. If α *and* β *are the zeroes of the polynomial* x^2-6x+a *. Find the value of* a, *if* $3\alpha+2\beta=20$.
Ans. a = -16

Q6. If the sum and product of zeroes of the polynomial ax^2-5x+c *is equal to* 10 *each, find the value of* a *and* c.
Ans. a = $\frac{1}{2}$, c = 5

Q7.Find the value of k for which the polynomial $x^4+10x^3+25x^2+15x+k$ *is exactly divisible by* $x+7$
Ans. $k=-91$

Q8. Find the value of p for which the polynomial x^3+4x^2-px+8 is exactly divisible by $(x-2)$. Ans. p = 16

Q9. If the polynomial f(x) = $3x^4-9x^3+x^2+15x+k$ is completely divisible by $3x^2-5$, find the value of k and hence find the other two zeroes of the polynomial. Ans. k = -10 ; x = $2,1$

Q10. If α and β are the zeroes of the polynomial $p(x)=x^2+3x+7$, then find (i) $\frac{1}{\alpha}+\frac{1}{\beta}$ (ii) $\alpha^2+\beta^2$ (iii) $\frac{\alpha}{\beta}+\frac{\beta}{\alpha}$ (iv) $\alpha^3+\beta^3$ (v) $\frac{\alpha^2}{\beta}+\frac{\beta^2}{\alpha}$ *Ans.* (i) $\frac{-3}{7}$ (ii) -5 (iii) $\frac{-5}{7}$ (iv) 36 (v) $\frac{36}{7}$

Q11. If α and β are the zeroes of the polynomial $p(x)=x^2+x+1$, then find (i) $\frac{1}{\alpha}+\frac{1}{\beta}$ (ii) $\alpha^2+\beta^2$ (iii) $\frac{\alpha}{\beta}+\frac{\beta}{\alpha}$ (iv) $\alpha^3+\beta^3$ (v) $\frac{\alpha^2}{\beta}+\frac{\beta^2}{\alpha}$ *Ans.* (i) -1 (ii) -1 (iii) -1 (iv) 2 (v) 2

Q12. If α and β are the zeroes of the polynomial $p(x)=x^2-6x+k$, *such that* $\alpha^2+\beta^2=40$, then find the value of k. Ans. k = -2

Q13. If α and β are the zeroes of the polynomial $p(x)=2x^2+5x+k$, satisfying the relation $\alpha^2+\beta^2+\alpha\beta=\frac{21}{4}$, then find the value of k. Ans. k = 2

Q14. If α and β are the zeroes of the polynomial $x^2-2x-15$, then form a quadratic polynomial whose zeroes are 2α *and* 2β . *Ans.* $x^2-4x-60$

Q15. If α and β are the zeroes of the polynomial x^2-2x-1 , then form a quadratic polynomial whose zeroes are $2\alpha-1$ *and* $2\beta-1$. *Ans.* x^2-2x-7

Q16. If α and β are the zeroes of the polynomial x^2-x-2 , then form a quadratic polynomial whose zeroes are $2\alpha+1$ *and* $2\beta+1$. *Ans.* x^2-4x-5

Q17. If α and β are the zeroes of the p(x) = $6y^2-y+2$, then form a quadratic polynomial whose zeroes are $\frac{1}{\alpha}$ *and* $\frac{1}{\beta}$.
Ans. $\frac{k}{2}(2x^2-x+3)$

Q18. If α and β are the zeroes of the p(x) = $6x^2-7x-3$, then form a quadratic polynomial whose zeroes are $\frac{1}{\alpha}$ *and* $\frac{1}{\beta}$.
Ans. $\frac{k}{3}(3x^2+7x-6)$