R.S.ACADEMY OF BRILLIANCE

#443, 7TH MAIN, 13TH CROSS, BENGALURU-560078

10TH CBSE- MATHEMATICS ASSIGNMENT

SECTION - A

Date: 10/06/2018

Multiple choice Questions (MCQs):

1. The Zeroes of the quadratic polynomial $x^2 + 99x + 127$ are:
   (A) Both positive (B) Both negative
   (C) One positive and one negative (D) both equal

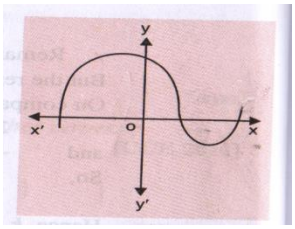
2. If α, β are zeroes of $x^2 - 4x + 1$, then $\frac{1}{\alpha} + \frac{1}{\beta} - \alpha\beta$ is :
   (A) 3 (B) 5 (C) -5 (D) -3

3. If α, β are zeroes of polynomial $f(x) = x^2 + px + q$ then polynomial having $\frac{1}{\alpha} + \frac{1}{\beta}$ $\alpha\beta$ is zeroes is
   (A) $x^2 + qx + p$ (B)) $x^2 - px + q$ C)) $qx^2 + px + 1$ (D)) $px^2 + qx + 1$

4. If α, and β are the zeroes of polynomial $5x^2 - 7x + 2$, than sum of their reciprocals is:
   (A) $\frac{7}{2}$ (B) $\frac{7}{5}$ (C) $\frac{2}{5}$ (D) $\frac{14}{25}$

5. The quadratic polynomial p(x) with -81 and 3 as product and one of the zeroes respectively is :
   (A) $x^2 + 24x - 81$ (B) $x^2 - 24x - 81$
   (C)) $x^2 - 24x + 81$ (D) $x^2 + 24x + 81$

6. The graph of y = p (x) given below. The number of zeroes of p(x) are:



   (A) 0 (B) 2 (C) 4 (D) 3

7. If 1 is zero of the polynomial $p(x) = ax^2 - 3(a-1)x - 1$, then the value of 'a' is
   (A) 1 (B) -1 (C) 2 (D) -2

8. If α, β are zeroes of $x^2 - 6x + k$. what is the value of k if $3\alpha + 2\beta = 20$
   (A) -16 (B) 8 (C) - 2 (D) -8

9. If one zero of $2x^2 - 3x + k$ is reciprocal to the other, then the value of k is;
   (A) 2 (B) $\frac{-2}{3}$ (C) $\frac{-3}{2}$ (D) – 3

10. The number of polynomials having zeros -2 and 5 is:
    (A) 1 (B) 2 (C) 3 (D) more than 3

11. The value of p for which the polynomial
    $X^3 + 4x2^{-} PX + 8$ is exactly divisible by (x - 2) is

12. The quadratic polynomial whose sum of zeroes is 3 and product of zeroes is - 2 is:
    (A) $x^2 + 3x - 2$ (B) $x^2 - 2x + 3$ (C) $x^2 - 3x + 3$ (D) $x^2 - 3x - 2$

13. If one of the zeroes of the quadratic polynomial $(k - 1) x^2 + kx + 1$ is -3, then the value of k is
    (A) -4/3 (B) 4/3 (C) 2/3 (D) -2/3

14. The number of zeroes for the polynomial y = p (x) from the given graph is:
    (A) 3 (B) 1 (C) 2 (D) 0

15. The degree of the polynomial $(x + 1) (x^2 - x - x^4 + 1)$ is :
    (A) 2 (B) 3 (C) 4 (D) 5

16. If -4 is a zero of the polynomial $x^2 - x - 2 (2 + 2k)$, then the value of k is
    (A) 3 (B) 9 (C) 6 (D) -9

17. The quadratic polynomial having zeroes are 1 and -2 is :
    (A) $x^2 - x + 2$ (B) $x^2 - x - 3$ (C) $x^2 + x - 3$ (D) $x^2 + x + 2$

SECTION – B

Very Short Answer Type Questions

1. If α and β are the zeroes of $x^2+7x +12$, then find have value of $\frac{1}{\alpha} + \frac{1}{\beta} + 2\alpha\beta$.
2. Find the zeroes of the quadratic polynomial $2x^2 -25$
3. Find the zeroes of the quadratic polynomial $4x^2 - 7$.
4. Find a quadratic polynomial whose zeroes are $3 +\sqrt{5}$ and $3 -\sqrt{5}$.
5. If α, β are zeroes of quadratic polynomial $x^2 - (k + 6) x + 2 (2k - 1)$ find k if $\alpha + \beta = \frac{1}{2} \alpha\beta$.

6. Form a quadratic polynomial whose one of the zeroes is +15 and sum of the zeroes is 42.
7. Divide $(2x^2 + x – 20)$ by $(x + 3)$ and verify division algorithm.
8. Find the zeroes of the quadratic polynomial $\sqrt{3x^2}$ - 8x + $4\sqrt{3}$.
9. What must be added to polynomial f (x) = $x^4 + 2x^3 - 2x^2 + x – 1$ so that the resulting polynomial is exactly divisible by $x^2 + 2x – 3$?
10. Find a quadratic polynomial with zeroes 3 + $\sqrt{2}$ and 3 - $\sqrt{2}$.
11. If α and $\frac{1}{\alpha}$ are the zeroes of the polynomial $4x^2 – 2x + (k – 4)$, find the value of k.
12. If being given that 1 is one of the zeroes of the polynomial $7x – x^3 – 6$. Find its other zeroes.
13. α, β are the roots of the quadratic polynomial $p(x) = x^2 – (k -6) x + (2k + 1)$. Find the value of k, if $\alpha + \beta = \alpha\beta$.
14. Find the zeroes of the polynomial $100 x^2 -81$.
15. Divide the polynomial $p(x) = 3x^2 - x^3 – 3x + 5$ by $g(x) = x – 1 - x^2$ and find its quotient and remainder.
16. Find a quadratic polynomial, the sum of whose zeroes is 7 and their product is 12. Hence find the zeroes of the polynomial.
17. Find a quadratic polynomial whose zeroes are 2 and - 6. Verify the relation between the coefficients and zeroes of the polynomial.
18. Can (x - 3) be the remainder on the division of a polynomial p(x) by (2x + 5)? Justify your answer.
19. Form a quadratic polynomial p (y) with sum and product of zeroes are 2 and -3/5 respectively.
20. Divide $6x^3 + 13x^2 + x – 2$ by $2x + 1$, and find quotient and remainder.

SECTION – C

Short Answer Type Questions

1. If α and β are zeroes of the quadratic polynomial $x^2 – 6x + a$: find the value of 'α' if $3\alpha + 2\beta = 20$.
2. Check whether the polynomial $g (x) = x^3 – 3x + 1$ is the factor of polynomial $p(x) = x^5 - 4x^3 + x^2 + 3x + 1$
3. Obtain all zeroes of $f (x) = x^4 –3x^3 – x^2 + 9x – 6$ if two of its zeroes are (-$\sqrt{3}$) and $\sqrt{3}$.
4. If α and β γ are zeroes of $f (x) = x^4 – 3x^3 –x^2 + 9x – 6$ if two of its zeroes are (-$\sqrt{3}$) and $\sqrt{3}$.
5. If α and β are the zeroes of the polynomial $x^2–5x + k$ such that $\alpha–\beta = 1$.Find the value of k
6. If α and β are the two zeroes of the polynomial $25 p^2-15 p + 2$, find a quadratic polynomial whose zeroes are $\frac{1}{2\alpha}$ and $\frac{1}{2\beta}$.
7. Divide $(6 + 9x + x^2 – 6x^3)$ by $(2 + 5x – 3x^2)$ and verify the division algorithm.

8. If α and β are zeroes of the polynomial x^2-2x-8, then form a quadratic polynomial whose zeroes are 2α and 2β.

9. If α and β are the zeroes of the polynomial x^2-2x-8 then form a quadratic polynomial whose zeroes are 3α and 3β.
10. If one solution of the equation $3x^2 - 8x + 2k + 1$ is seven times the other. Find the solutions and the value of k.

SECTION – D

1. What must be added to the polynomial $f(x) = x^4 + 2x^3 - 2x^2 + x - 1$ so that the resulting polynomial is exactly divisible by $x^2 + 2x - 3$?
2. Find the other zeroes of the polynomial $2x^4 - 3x^3 - 3x^2 + 6x - 2$ if $-\sqrt{2}$ and $\sqrt{2}$ are the zeroes of the given polynomial.
3. If the remainder on division of $x^3 + 2x^2 + kx + 3$ by x - 3 is 21, find the quotient and the value of k. Hence, find the zeroes of the cubic polynomial $x^3 + 2x^2 + kx - 18$.
4. Find all other zeroes of the polynomial $p(x) = 2x^3 + 3x^2 - 11x - 6$, if one of its zero is −3.
5. Divide $30x^4 + 11x^3 - 82x^2 - 12x + 48$ by $(3x^2 + 2x - 4)$ and verify the result by division algorithm.
6. Find all the zeroes of the polynomial $x^4 - 5x^3 + 2x^2 + 10x - 8$, if two of its zeroes Are $-\sqrt{2}$ $\sqrt{2}$.
7. Find all the zeroes of the polynomial $x^4 + x^3 - 9x^2 - 3x + 18$, if two of its zeroes Are $\sqrt{3}$ $-\sqrt{3}$.
8. Obtain all the zeroes of $x^4 - 7x^3 + 17x^2 - 17x + 6$ if two of its zeroes are 1 and 2.
9. Find all the zeroes of the polynomial $2x^4 - 10x^3 + 5x^2 + 12$, if it is given that two of its zeros are $\sqrt{\frac{3}{2}}$ and $-\sqrt{\frac{3}{2}}$
10. Find all zeroes of polynomial $4x^4 - 20x^3 + 23x^2 + 5x - 6$, if two of its zeroes are 2 and 3.

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