Work Sheet – 03 (Mathematics)
Chapter – Three, Exercise- 3.4

Algebraic Expression (26.09.2020)

Creative Multiplication Choice Questions

1. If $f(x) = x^3 - x - 24$ then what values of x, where $f(x) = 0$?   [R.B.- 20]
   a) 2
   b) 3
   c) 4
   d) 6

2. What is the constant term of the equation $4x^3 - 5x - 2\sqrt{9} = 0$ then where x is a variable?   [J.B.- 20]
   a) -2
   b) 2
   c) A
   d) $a - 2$

3. Which of the following is the factorized form of $2\sqrt{2}x^3 + 125$?   [B.B.- 20]
   a) $(\sqrt{2}x + 5)(2x^2 - 5\sqrt{2}x + 25)$
   b) $(\sqrt{2}x - 5)(2x^2 + 5\sqrt{2}x + 25)$
   c) $(\sqrt{2}x + 5)(2x^2 + 5\sqrt{2}x + 25)$
   d) $(\sqrt{2}x - 5)(2x^2 - 5\sqrt{2}x + 25)$

4. If $f(x) = x^2 - 4x + 4$ then which is the value of $f(2)$?   [R.B.- 17]
   a) 0
   b) 1
   c) 2
   d) 4

5. Which are the roots of the equation $x^2 - x - 12 = 0$?   [R.B.- 17]
   a) 3, 4
   b) $-3, 4$
   c) $3, -4$
   d) $3, -4$

6. Which is the solution of the equation $2x^2 - 4ax = 0$?   [R.B.- 17]
   a) 0
   b) 2a
   c) 0, 2a
   d) 2, 2a

7. If $(x - 3)$ is a factor of $f(x) = x^2 - 5x + p$ then what is the value of P?
   a) -6
   b) -5
   c) 5
   d) 6

8. If $f(x)$ is divided by $(ax + b)$ then quotient is $f(-\frac{b}{a})$ when?
   i. The dimension of f(x) will be positive.
   ii. The dimension of f(x) will be negative.
   iii. $a \neq 0$.
   Which one of the following is correct?
   a) I
   b) ii
   c) i and iii
   d) iii
   Ans: c

9. Factors of $54x^4 + 27x^3a - 16x - 8a$ are -
   i. $2x + a$
   ii. $3x - 2$
   iii. $9x^2 + 6x + 4$.
   Which one of the following is correct?
   a) i and ii
   b) i and iii
   c) ii and iii
   d) i, ii and iii

If $f(x) = x^3 + 27$ then answer the questions (10 – 11):

10. $f(-3) + f(3) =$ What?
    a) 0
    b) 27
    c) 30
    d) 54

11. Which one of the following is a factor of $f(x)$?
    a) $x - 3$
    b) $x - 9$
    c) $x^2 - 3x + 9$
    d) $x^2 + 3x + 9$

If $f(x) = x^2 - 5x + 6$ then answer the questions No. (12 – 13) using stem.

12. What is the root its $f(x) = 0$?
    a) -3
    b) -2
    c) 2
    d) 4

13. What is the remainder if $f(x)$ is divided by $(x + 4)$?
    a) -30
    b) 2
    c) 4
    d) 42

14. What are the roots of the equation $x^3 - x^2 - 12x = 0$?
    a) 0, 3, 4
    b) $0, 3, -4$
    c) $0, -3, 4$
    d) $0, -3, -4$

15. If $f(x) = 54x^4 + 27x^3a - 16x - 8a$ and $f\left(-\frac{1}{2}a\right) = 0$ then which of the following is the factor of $f(x)$?
    a) $2x - a$
    b) $x + a$
    c) $2x + a$
    d) $x + 2a$

16. If $f(x) = x^3 + 2x^2 - 5x - 6$ then what would be a factor of $f(x)$?
    a) $x + 1$
    b) $x - 1$
    c) $x^2 + 1$
    d) x

17. What is the sum of the factors of the polynomial $f(x) = 2x^2 - x - 3$?
    a) $2x - 1$
    b) $2x + 1$
    c) $3x - 2$
    d) $3x + 2$

18. If $f(x) = x - y - z$ for which values of x then the function $f(x) = 0$?
    a) $y - z$ b) $y + z$
    c) $x + y$ d) $x - y$

19. If $f(x) = x^3 - x - k$ and $f(2) = 0$ then what is the value of k?
    a) -6 b) 6
    c) 8 d) 16

20. If $f(x) = x^3 - 21x - 20$ for which values of x then the value of $f(x)$ will be zero?
    a) 2 b) 1
    c) -1 d) -2

21. If $(x + a)$ is factor of f(x) then which of the following is correct?
    a) $f(a) = 0$ b) $f\left(\frac{a}{b}\right) = 0$
    c) $x + a = 0$ d) $f(-a) = 0$

22. If $x - 2$ is a factor of $x^3 - x - 6$ then what is another factor of that expression?
    a) $x^2 + 2x + 3$
    b) $x^2 + x + 3$
    c) $x^2 + 2x$
    d) $x^2 + x + 6$

23. If $f(x) = x^3 - x - 24$ then $f(3) = 0$ which of the following is a factor of f(x)?
    a) $x^2 + 2x + 8$
    b) $x^2 + 3x + 8$
    c) $x^2 + x + 3$
    d) $x^2 + 3x + 5$

24. If $f(x) = x^3 - 7xy^2 - 6y^3$ then what is the value of $f(-y)$?
    a) x b) y
    c) 0 d) 1

25. If x - 1 is a factor of q(x) then what is the value of x?
    a) 1 b) -3
    c) -2 d) 0

26. If $(x^2 + 2x + 3)$ is a factor of $x^3 - x - 6$ then what is the other factor of it?
    a) $(x + 2)$ b) $(x - 2)$
    c) $\left(x - \frac{1}{2}\right)$ d) $\left(x + \frac{1}{2}\right)$

27. For $f(x) = 6x^2 - x - 1$ then -
    i. $f\left(\frac{1}{2}\right) = 0$
    ii. $f(0) = 1$
    iii. $(3x + 1)$ is a factor of f(x).
    Which one of the following is correct?
    a) i and ii   b) i and iii
    c) ii and iii   d) i, ii and iii

28. If $f(a) = a^3 + 3a + 36$ and $(a + 3)$ is a factor of $f(a)$ then -
    i. Then $f(-3) = 0$.
    ii. $(a - 4)$ will be a factor of f(a).
    iii. $(a^2 - 3a + 12)$ will be a factor of f(a).
    Which one of the following is correct?
    a) i and ii   b) i and iii
    c) ii and iii   d) i, ii and iii

29. $\left(x + \frac{b}{a}\right)$ will be a factor of the polynomial $f(x) = ax + b$ if -
    i. $a \neq 0$
    ii. $a = b$
    iii. $f\left(-\frac{b}{a}\right) = 0$
    Which of the following is correct?
    a) i and ii   b) i and iii
    c) ii and iii   d) i, ii and iii

30. If $(x - a)$ is factor of the polynomial f(x) -
    i. $f(a) = 0$
    ii. $f(x) = 0$
    iii. The degree of $(x - a)$ is 1.
    Which of the following is correct?
    a) i and ii   b) i and iii
    c) ii and iii   d) i, ii and iii

31. If case of $f(x) = x^3 - 3x^2 + 4x - 4$ then -
    i. $f(1) = 0$
    ii. $f(2) = 0$
    iii. If $(x - 2)$ is the divisor then remainder is zero.
    Which of the following is correct?
    a) i and ii   b) i and iii
    c) ii and iii   d) i, ii and iii