

## IX Class

### FACTORIZATION

#### EXERCISES 1 to 3

#### I. One mark questions:

1. Factorise :  $a^3 + 6a^2 + 9a$
2. Find the factors of  $9a^2b^2 - 6abc + c^2$
3. Factorise :  $(a + b)^2 - c^2$
4. Factorise :  $a^2 - b^2 - c^2 - 2bc$
5. If  $x + y + z = 0$  prove that  $x^3 + y^3 + z^3 = 3xyz$
6. Factorise :  $x^2 - 8x + 15$
7. Find the factors of  $12 - x - x^2$
8. Factorise :  $7x^2 - 8x - 12$
9. Factorise :  $16 + 8x - 3x^2$
10. Factorise :  $x^2 - 3x - 180$

#### II. Choose the correct answer :

11.  $16x^2 - 25 =$  [     ]  
a)  $(4x + 5)(4x - 5)$      b)  $(4x + 5)^2$      c)  $(4x - 5)(4x - 5)$      d) none
12.  $(2x + 1)^2 =$  [     ]  
a)  $4x^2 + 4x + 1$      b)  $4x^2 - 4x + 1$      c)  $2x^2 + 4x + 1$      d)  $2x^2 - 4x + 1$
13.  $(x + 2)(x - 2)(x^2 + 4) =$  [     ]  
a)  $x^4 + 4$      b)  $x^4 - 16$      c)  $x^4 - 4$      d)  $x^4 + 16$
14.  $a^2 + b^2 + c^2 - 2ab - 2bc + 2ca =$  [     ]  
a)  $(a + b + c)^2$      b)  $(a + b - c)^2$      c)  $(a - b + c)^2$      d)  $(a - b - c)^2$
15.  $x^2 + y^2 + 4z^2 + 2xy - 4yz - 4xz =$  [     ]  
a)  $(x + y - z)^2$      b)  $(x - 2y + z)^2$      c)  $(x - 2y - z)^2$      d)  $(x + y - 2z)^2$
16.  $(x + 2)(x^2 - 2x + 4) =$  [     ]  
a)  $x^3 - 8$      b)  $x^2 - 4$      c)  $x^2 + 4$      d)  $x^3 + 8$

17. Factors of  $x^2 - x - 20$  is [    ]  
 (x-5)(x+4)                      b) (x-5)(x-4)    c) (x+5)(x-4)    d) none
18. Factors of  $8a^3 - 1$  [    ]  
 a)  $(2a+1)(4a+2a+1)$                       b)  $(2a-1)(4a^2+2a+1)$   
 c)  $(2a-1)(4a^2-2a+1)$                       d)  $(2a+1)(4a^2+2a-1)$
19. If  $a+b+c=0$  then  $a^3+b^3+c^3=$  [    ]  
 a)  $abc$                       b)  $3(a+b+c)$     c)  $a^3b^3c^3$     d)  $3abc$
20. Factors of  $x^{2n} - 1$  is [    ]  
 a)  $(x^n+1)(x^n-2)$     b)  $(x+1)(x-1)$     c)  $(x^n+1)(x^n-1)$     d)  $(2x+1)(x+1)$
21. Expression in the form of  $x^2 + px + q$  is called \_\_\_\_\_ expression [    ]  
 a) Quadratic                      b) Monic quadratic    c) Bi-quadratic    d) cubic

**III. Fill in the blanks :**

22. General form of quadratic expression is \_\_\_\_\_
23. The degree of quadratic expression is \_\_\_\_\_
24. Number of factors of quadratic expression is \_\_\_\_\_
25. Factors of  $8a^3 - 27b^3$  are \_\_\_\_\_
26.  $(a - 2b + 1)^2 =$  \_\_\_\_\_
27. The factors of  $1 - 9a^2 =$  \_\_\_\_\_
28.  $(3x - 2)^3 =$  \_\_\_\_\_
29.  $(\sqrt{x} + \sqrt{y})(\sqrt{x} - \sqrt{y}) =$  \_\_\_\_\_
30. Factors of  $x^2 + 4x - 21$  are \_\_\_\_\_
31. Factors of  $6 - x - 2x^2$  are \_\_\_\_\_

**IV. Matching :**

- |     |             |       |  |
|-----|-------------|-------|--|
| 32. | $(a-b)^3$   | [   ] | A. $a^2 + b^2 + c^2 + 2ab - 2bc - 2ca$ |
| 33. | $a^3 + b^3$ | [   ] | B. $a^3 + 3a^2b + 3ab^2 + b^3$         |
| 34. | $(a+b-c)^2$ | [   ] | C. $(a-b)(a^2 + ab + b^2)$             |
| 35. | $a^3 - b^3$ | [   ] | D. $a^2 + b^2 + c^2 - 2ab - 2bc - 2ca$ |
| 36. | $(a+b)^3$   | [   ] | E. $(a+b)(a^2 - ab + b^2)$             |
- F.  $a^3 - 3a^2b + 3ab^2 - b^3$   
G.  $3abc$