Ch 10 MATHEMATICAL OPERATIONS

ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (e) ? = 540 ÷ 36 × 12 + 75 – 55
   or ? = 15 × 12 + 75 – 55
   or ? = 180 + 75 – 55 = 200
2. (c) ? = 360 ÷ 24 + 56 × 5 – 48
   or ? = 15 + 280 – 48 = 247
3. (a) × means +
   + means ÷
   ÷ means –
   – means ×
   5 – 7 × 9 + 3 ÷ 2 = ?
   or ? = 5 × 7 + 9 ÷ 3 – 2
   or ? = 5 × 7 + 3 – 2
   or ? = 35 + 3 – 2 = 36
4. (d)

– ⇒ +	× ⇒ –
÷ ⇒ ×	+ ⇒ ÷

   20 × 12 + 4 – 16 ÷ 5 = ?
   or ? = 20 – 12 ÷ 4 + 16 × 5
   or ? = 20 – 3 + 80 = 97
5. (b) ? = 20 R 16 K 5 M 10 T 8
   or 20 + 16 × 5 ÷ 10 – 8
   or $20 + 16 \times \frac{5}{10} - 8$
   or 20 + 8 – 8 = 20
6. (a) 15 ÷ 5 × 9 + 3 - 6 = ?
   or ? = 15 × 5 - 9 ÷ 3 + 6
   or ? = 15 × 5 -3 + 6
   or ? = 81 - 3 = 78
7. (e) 40 R 8 W 10 T 12 P 16 = ?
   or ? = 40 ÷ 8 × 10 -12 + 16
   or ? = 5 × 10 - 12 + 16
   or ? = 66 - 12 = 54
8. (b) ? = 288 ÷ 32 × 6 - 45 + 9
   or ? = 9 × 6 - 45 + 9
   or ? = 54 - 45 + 9 = 18
9. (c) 40$20@2#40★20#38
   40 - 20 × 2 + 40 ÷ 20 + 38
   $= 40 - 20 \times 2 + \frac{40}{20} + 38$
   = 40 – 40 + 2 + 38
10. **(a)** 60 T 48 P 8 W 6 R 9 = ?
    ⇒ 60 + 48 ÷ 8 – 6 × 9 = ?
    ⇒ 60 + 6 – 54 = ?
    ⇒ 12 = ?
11. (e) 10 ┐ 10=5 ┐ 10 ? 50 ● 10
    = 10 × 10 - 5 × 10 +50 ÷ 10
    $10 \times 10 - 5 \times 10 + \frac{50}{10}$
    =100 -50 + 5
    =55
12. (b) Using the given symbols, we have:
    Given expression
    $= 8 + 7 \times 8 \div 40 - 2 = 8 + 7 \times \frac{1}{5} - 2$
    $= \frac{37}{5} = 7\frac{2}{5}.$
13. (d) Using the proper symbols, we have:
    Given expression = 16 + 24 ÷ 8 – 6 ÷ 2 × 3
    = 16 + 3 – 3 × 3
    = 16 + 3 – 9 = 10.
14. (d) Using the proper notations in (d), we get
    9 + 9 ÷ 9 – 9 × 9
    = 9 + 1 – 9 × 9 = 9 + 1 – 81 = –71.
    ∴ option (d) is true.
15. (d) 40 + 12 ÷ 3 × 6 – 60 = 4
16. (c) 9 × 8 + 8 ÷ 4 – 9 = 65

17. (c) $24 \times 4 \div 8 + 4 = 24 \times \frac{1}{2} + 4 = 12 + 4 = 16$

18. (b) $20 + 12 - 4 \div 8 \times 6 = 29$

19. (d) Using the proper notations in (d), we get
$8 \times 8 + 8 \div 8 - 8 = 8 \times 8 + 1 - 8$
$= 64 + 1 - 8 = 57$

20. (b) Since, $20 \times 10 = 200$, therefore, – means ×
$8 + 4 = 12$, therefore, ÷ means +.
$6 - 2 = 4$, therefore, × means – .
and $12 \div 3 = 4$, therefore, + means ÷.
Now, given expression
$= 100 \times 10 - 1000 + 1000 \div 100 - 10$
$= 100\ 0 - 1000 + 10 - 10 = 0$

21. (c) Using the proper signs, we get:
$36 - 8\ 4 + 6 \div 2 \times 3 = 36 - 2 + 3 \times 3$
$= 36 - 2 + 9$
$= 45 - 2 = 43$

22. (c) Using proper notations, we have:
(1) given statement is $3 \div 2 + 4 < 9 \div 3 - 1$
or $\frac{11}{2} < 2$, which is not true.
(2) given statement is $3 + 2 + 4 < 18 \div 3 - 2$
or $9 < 4$, which is not true.
(3) given statement is $3 + 2 - 4 > 8 \div 4 - 2$
or $1 > 0$, which is true.
(4) given statement is $3 \div 2 - 4 > 9 \div 3 - 3$
or $-\frac{5}{2} > 0$, which is not true . So, the statement (c) is true.

23. (d) Using the correct symbols, we have:
Given expression $= 8 + 36 \div 6 - 6 \div 2 \times 3$
$= 8 + 6 - 3 \times 3 = 5$

24. (b) Using the proper notations in (2), we get the statement as $5 \times 2 \div 2 < 10 - 4 + 2$ or $5 < 8$, which is true.

25. (a) Using the proper signs in the given expression , we get
$175 \div 5 \times 20 - 3 \times 10 = 7 + 5 \text{ x } 20 - 3 \times 10$
$= 7 + 100 - 30$
$= 107 - 30 = 77.$

26. (a) Given that : $20 - 10 = 200$.
But. actually $20 \times 10 = 200$, so – means x.
Given that $8 \div 4 = 12$, But actually $8 \div 4 = 12$.
So, ÷ means +.
Given that : $6 \times 2 = 4$
But actually $6 - 2 = 4$. So,× means –
Thus, in the given mathematical language – means x,
÷ means + and x means – so, + Given expression
$= 100 \times 10 - 1000 + 1000 \div 100 - 10$
$1000 - 1000 + 10 - 10 = 0.$

27. (d) Using the correct symbols, we have
Given expression = 24 x 12 + 18 ÷ 9
$= 288 + 2 = 290.$

28. (b) Using the correct symbols, we have
Given expression = $(3 \times 15 + 19) \div 8 - 6$
$= 64 \div 8 - 6 = 8 - 6 = 2.$

29. (a) Using the correct symbols, we have
Given expression
$= \frac{(36-4) \div 8 - 4}{4x8 - 2x16 + 1} = \frac{32 \div 8 - 4}{32 - 32 + 1} = \frac{4-4}{0+1} = 0.$

30. (d) Using the correct symbols, we have
Given expression = $12 - 12 \times 28 \div 7 + 15$
$= 12 - 12 \times 4 + 15 = 12 - 48 + 15 = 27 - 48$
$= -21.$

31. (c) Using the correct symbols, we have
Given expression = $(10 \times 4) + (4 \times 4) - 6$
$= 40 + 16 - 6$
$= 56 - 6 = 50$.

32. (d) Using the proper notations in (4) we get the statement as $2 \times 5 - 6 + 2 = 6$
or $10 - 6 + 2 = 6$ or $6 = 6$, which is true.

33. (c) Using the proper notations in (3), we get the statement as $5 \times 2 \div 2 < 10 - 4 + 8$
or $5 \times 1 < 18 - 4$ or $5 < 14$,
which is true.

34. (d) Interchanging (+ and ÷) and (2 and 4), we get :
(1) $4 \div 2 + 3 = 3$ or $5 = 3$, which is false
(2) $2 \div 4 + 6 = 1.5$ or $6.5 = 1.5$, which is false.
(3) $2 + 4 \div 3 = 4$ or $\frac{10}{3} = 4$, which is false.