CH 1 NUMBER SYSTEM

ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (c) From the given alternatives,

   $112 \times 114 = 12768$

   $\therefore$ Large number = 114

2. (d) Amount received by each person

   $= ₹ \frac{50176}{32} = 1568$

3. (d) Amount received by each person

   $= \frac{172850}{25} = ₹ 6914$

4. (a) Total number of candles = $15 \times 12 \times 39 = 7020$

5. (a) Out of the given alternatives,

   $137 \times 139 = 19043$

   $\therefore$ Required smaller number = 137

6. (d) Let the number be x and (x + 1),

   $\therefore \; x(x + 1) = 8556$

   or, $x^2 + x - 8556 = 0$

   or, $x^2 + 93x - 92x - 8556 = 0$

   or, $(x^2 + 93)(x - 92) = 0$

   $\therefore \; x = 92$

7. (c) Quantity of wheat for 7 days = 112 kg

   $\therefore$ Quantity of wheat for 1 day = $\frac{112}{7}$ kg

   $\therefore$ Quantity of wheat for 69 days

   $= \frac{112}{7} \times 69 = 1104$ kg

8. (a) Required amount $= \frac{41910}{22} = ₹1905$

9. (c) Let the smaller number be x

   $\because \; x \times (x + 2) = 4488$

   $\Rightarrow x^2 + 2x - 4488 = 0$

   $\Rightarrow (x + 68)(x - 66) = 0$

   $\therefore \; x = 66$

10. (a) Required number of bananas

    $= \frac{21}{7} \times 54 = 162$ dozen

11. (d) Amount received by each person

    $= \frac{72128}{46} = ₹1568$

12. (b) $38^2 = 1444$

    $39^2 = 1521$

    $\therefore$ Required number = 1521 – 1500 = 21

13. (e) Let the three consecutive integers be x, x + 1 and x + 2

    According to the question,

    x + x + 1 + x + 2 = 39

    or, 3x + 3 = 39

    or, 3x = 39 – 3 = 36

    or, $x = \frac{36}{3} = 12$

    $\therefore$ Required largest number

    = x + 2 = 12 + 2 = 14

14. (d) Number of pieces $= \frac{455.8}{8.6} = 53$

15. (d) Out of the given alternatives,

$56 \times 57 = 3192$

16. (c) Amount received by each student

$= \frac{15487}{76} = \approx ₹204$

17. (b) Quicker Approach:

The unit's digit of the number 16128 is 8,

From the given answer choices,

$126 \times 128 = 16128$

$\therefore$ Required larger number = 128

18. (c) Number of mangoes = 12 dozens

$= 12 \times 12 = 144$

$\therefore$ Number of mangoes in 43 boxes

$= 43 \times 144 = 6192$

19. (b) Requirement of bananas for 1 day in the canteen = 13 dozens

$\therefore$ Requirement of bananas for 9 weeks i.e. 63 days

$= 63 \times 13$ dozens

$= 63 \times 13 \times 12 = 9828.$

20. (e) Let the cost of one chair be ₹ x and that of a table be

= ₹y

According to the question,

$3x + 10y = ₹9856$

or, $2 \times (3x + 10y) = 2 \times 9856$

$\therefore \quad 6x + 20y = ₹19712$

21. (a) Amount received by each person

$= \frac{123098}{61} = ₹2018$

22. (a) According to the question,

$x + x + 2 + x + 4 + x + 6 + x + 8 = 140$

or, $5x + 20 = 140$

or, $5x = 120$

$\therefore \quad x = \frac{120}{5} = 24$

$\therefore \quad x + 8 = 24 + 8 = 32$

The next set of five consecutive even number will start with = 34

$\therefore$ Required sum

$= 34 + 36 + 38 + 40 + 42 = 190$

23. (d) Let the cost of a table be = ₹x and that chair be = ₹y

According to the question,

$5x + 6y = ₹2884$

$\therefore \quad 3 \times 5x + 3 \times 6y = 3 \times ₹2884$

or, $15x + 18y = ₹8652$

24. (a) From the given alternatives,

$1763 = 43 \times 41$

25. (e) Required quantity of rice

$= \frac{4560 \times 7}{30}$ kg = 1064 kg

26. (d) amount received by each person

$= \frac{13957}{45} = ₹310.15 \approx ₹ 310$

27. (d) Let the smaller number be x

$\because \quad x(x + 2) = 5358$

$\Rightarrow \quad x^2 + 2x - 5328 = 0$

$\Rightarrow \quad (x + 74)(x - 42) = 0$

$\therefore \quad x = 72$

28. (c) $\frac{x+x+2+x+4+x+6}{4} = 27$

$\Rightarrow x = \frac{27 \times 4 - 12}{4}$

$= \frac{96}{4} = 24$

$\therefore$ Highest number = 24 + 6 = 30

29. (a) Decimal equivalents of given fractions:

$\frac{1}{2} = 0.5$; $\frac{2}{3} = 0.67$;

$\frac{5}{9} = 0.56$; $\frac{6}{13} = 0.46$;

$\frac{7}{9} = 0.78$

$\therefore$ $0.46 < 0.5 < 0.56 < 0.67 < 0.78$

$\frac{6}{13} < \frac{1}{2} < \frac{5}{9} < \frac{2}{3} < \frac{7}{9}$

$\therefore$ Fourth fraction = $\frac{2}{3}$

30. (a) Decimal equivalents of fractions

$\frac{7}{8} = 0.875$, $\frac{4}{5} = 0.8$

$\frac{8}{14} = 0.57$, $\frac{3}{5} = 0.6$

$\frac{5}{6} = 0.83$

$\therefore$ $0.875 > 0.83 > 0.8 > 0.6 > 0.57$

$\therefore$ $\frac{7}{8} > \frac{5}{6} > \frac{4}{5} > \frac{3}{5} > \frac{8}{14}$

31. (b) Decimal equivalent of given fractions:

$\frac{2}{5} = 0.4$; $\frac{3}{4} = 0.75$; $\frac{4}{5} = 0.8$;

$\frac{5}{7} = 0.714$; $\frac{6}{11} = 0.545$

Clearly, $0.4 < 0.545 < 0.714 < 0.75 < 0.8$

$\therefore$ $\frac{2}{5} < \frac{6}{11} < \frac{5}{7} < \frac{3}{4} < \frac{4}{5}$

32. (a) Let the larger and smaller numbers be x and y respectively.

Then, $x - y = 3$ ...(i)

and, $x^2 - y^2 = 63$

$\Rightarrow (x + y)(x - y) = 63$

$\Rightarrow (x+y) = \frac{63}{3} = 21$ ...(ii)

From equation (i) and (ii),

x = 12

33. (a) Let the number be = x

According to the question,

$x - \frac{2x}{5} = 30$

$\Rightarrow \frac{3x}{5} = 30$

$\Rightarrow x = \frac{30 \times 5}{3} = 50$

34. (c) Sum to be collected from 54 students = 60×54 = ₹3240

Sum collected from 45 students = 60 × 45 = ₹2700

Difference = 3240 - 2700 = ₹540

$\therefore$ Additional amount to be paid by each student

$= \frac{540}{45} = ₹12$

35. (d) Let the number be x.

$\because$ $x^2 - (12)3 = 976$

$\therefore$ $x^2 = 976 + 1728 = 2704$

$\therefore$ $x = \sqrt{2704} = 52$

36. (c) $\because$ 5 chairs + 8 tables = ₹6574

$\therefore$ 10 chairs + 16 tables = 6574 × 2 = ₹ 13148

37. (b) Let the number be *x*.