परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
उत्तर कुंजी / Answer Key (2025-26)

कक्षा /Class: VII विषय /Subject: Mathematics अंक/Marks: 40
दिया गया पाठ्यक्रम/Portion covered: Ch 1

Section A

Question number	Answer
Q1.	(d) 18000
Q2.	(a) 25
Q3.	(c) 2720
Q4.	(c) 31000
Q5.	(b) 0.8
Q6.	(c) 10101010
Q7.	(b) 18200
Q8.	(a) 10000
Q9.	(a) yes
Q10.	(c) 7

Section B

Q11.(a)Three lakh six hundred.

(b) Five lakh forty thousand five

Q12. (a) 9,20,403

(b) 20,20,035

Q13. For ex:-

(a) $4 \times 10000 + 6 \times 100 + 2 \times 10 + 9 \times 1$
(b) $40 \times 1000 + 60 \times 10 + 29 \times 1$

Q14. Surprisingly there are NO consecutive numbers that don't share letters in English

Section C

Q15.

i. <
ii. >
iii. >

Q16.

i. 976
ii. 1000
iii. 530

Q17.

i. 40000
ii. 800×10000
iii. 20250

Section D

Q18.

i. 270628000
ii. 270630000
iii. 270600000
iv. 271000000
v. 270000000

Q19.

i. 90120
ii. 98280
iii. 38530 + 240012 = 278542
OR
160040 + 68280 + 253670 = 481990

Q20.

i. Three crore eighty one lakhs fifty seven thousand three hundred eleven.
ii. 100000
iii. Three crore fifty one lakh ninety three thousand nine hundred seventy eight
Thirty five million one hundred ninety three thousand nine hundred seventy eight
OR
$30000000 + 5000000 + 100000 + 90000 + 3000 + 900 + 70 + 8$and
$30000000 + 8000000 + 100000 + 50000 + 7000 + 300 + 10 + 1$

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दिया गया पाठ्यक्रम/Portion covered: Ch 2

1.(A) 11

2.(D) Division

3.(C) 30

4.(B) 13

5.(C) 6×6

6.(C) BODMAS

7.(C) 4

8.(A) 9

9.(A) 11

10.(B) 3+7×2

Section B

11. **Answer:**
Step 1: Brackets → (5 - 3) = 2
Step 2: Multiply → 6 × 2 = 12
Step 3: Add → 8 + 12 = **20**

12. **Answer:**
Expression: 2 × number + 7
= 2 × 6 + 7
= 12 + 7 = **19**

13. 102 - 48 = 54
100 - 45 = 55
So, 102 - 48 < 100 - 45

14. Place brackets around (5 + 3):
14 - (5 + 3) = 14 - 8 = 6

Section C

15. Number of chocolate chip cookies in a box = 6
Number of peanut butter cookies in a box = 4
Total number of cookies in the box = 6 + 4
Therefore, the total number of cookies in such 15 boxes = 15 × (6 + 4)
= 15 × 10
= 150 cookies.

16. a. 4
    b. 55
    c. 41
    d. 6
17. Number of cupcakes bought by Shreya = 12
    The cost of each cupcake = ₹ 20
    Total cost of 12 cupcakes = 12 × 20
    Since the baker gave her a discount of ₹ 18 on the total cost.
    Therefore, the amount of money Shreya has to pay to the baker for 12 cupcakes = 12 × 20 – 18
    = 12 × 20 + (-18)
    = 240 + (-18)
    = 222
    Thus, Shreya will pay ₹ 222 for 12 cupcakes.

Section D

18. 1. Irfan's incorrect expression was: 100 - 15 + 56
    2.He subtracted 15 from 100 and then added 56, which gave ₹141, more than what he had. He added an expense instead of subtracting it.
    3.Correct expression: 100 - (15 + 56)
    15 + 56 = 71
    100 - 71 = ₹29
    Brackets show that both expenses must be added first, then subtracted from the total amount.
    OR
    New expression: 100 - (15 + 56 + 10)
    15 + 56 + 10 = 81
    100 - 81 = ₹19
    This correctly includes all three expenses inside brackets before subtracting.
19. 1. 20 marbles
    2.50
    3.Purna added 30 and 5 first to get 35, then multiplied by 4 to get 140. However, according to the BODMAS rule, multiplication must be done before addition. The correct order is:
    5 × 4 = 20, then 30 + 20 = 50.
    So, Purna's method violates the order of operations.
    OR
    Expression: 10 + 6 × 3
    Correct order using BODMAS:
    6 × 3 = 18, then 10 + 18 = 28
    If solved left to right without BODMAS:
    10 + 6 = 16, then 16 × 3 = 48 (incorrect result)

Section E

20. Weekday ticket cost = ₹ 100
    Let the number of weekday tickets sold = x
    Total weekend ticket sale = ₹ 150 × (number of weekend tickets sold)
    Let number of weekend tickets sold = y So:
    Weekend income = ₹ 150 × y
    Weekday income = ₹ 100 × x
    Total sales:
    150y + 100x = 2,50,000
    This is the algebraic equation.

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दिया गया पाठ्यक्रम/Portion covered: Ch 3

SECTION A

1. (a) 10
2. (a) 6.3
3. (b) 10
4. (a) 7.05
5. (b) 0.5cm
6. (a) 3.64
7. (b) 90 min
8. (b) To measure smaller lengths accurately
9. (c) 5.7 units
10. (c) 0.5cm

SECTION B

11. 3.65 is closest to 4.
12. (a) 39.10 (b) 1.534
13. Each term is increased by 0.4,
    Next three terms = 6.4, 6.8, 7.2
14. In January Tinku weighed = 35.75kg
    In February Tinku weighed = 34.50kg
    Weight loss = (35.75-34.50) kg
    Change = 1.25 kg

SECTION C

15. (a) $\frac{3}{10} + 3 + \frac{4}{100} = 3 + \frac{3}{10} + \frac{4}{100} = 3\frac{3}{10}\frac{4}{100} = 3\frac{34}{100}$

(b) $15\frac{6}{10}\frac{4}{100} + 14\frac{3}{10}\frac{6}{100} = (15+14) + \left(\frac{6}{10} + \frac{3}{10}\right) + \left(\frac{4}{100} + \frac{6}{100}\right)$

$= 29 + \frac{9}{10} + \frac{10}{100} = 29 + \frac{9}{10} + \frac{1}{10} = 29 + \frac{10}{10} = 29 + 1 = 30$

(c) $8\frac{6}{100} - 5\frac{3}{100} = (8-5) + \left(\frac{6}{100} - \frac{3}{100}\right) = 3\frac{3}{100}$

16. (a) $0.34 = \frac{34}{100} = \frac{30}{100} + \frac{4}{100} = \frac{3}{10} + \frac{4}{100}$

(b) 1.02= $\frac{102}{100} = \frac{100}{100} + \frac{2}{100} = 1 + \frac{2}{100}$

(c) 0.362 = $\frac{362}{1000} = \frac{300}{1000} + \frac{60}{1000} + \frac{2}{1000} = \frac{3}{10} + \frac{6}{100} + \frac{2}{1000}$

17. 2.5 feet= 2.5x12 inches=30 inches. This is a practical measurement to make with a standard measuring tape.

SECTION D

18. (a) (i)10.981>10.980>10.908>10.809>10.089

(ii) 22.331>22.313>22.310>22.133>22.130

(b) 2.5+3.2+4.1=9.8 kg

Total delivered = 20kg

Therefore, last four days= 20-9.8=10.2kg

SECTION E

19. (a) 10.5- (2x0.5m) = 9.5m

(b) ₹50.75x4= ₹203.00

(c) 4 spaces x 1.5m/space=6.0m

Yes, the 9.5m usable length is sufficient for the 6.0m of spacing required.

20. (a) ₹499.50+₹85.00= ₹584.50

(b) ₹584.50-₹125.25= ₹459.25

(c) New total before discount= ₹584.50+₹20.50= ₹605.00.

After discount: ₹605.00-₹125.25= ₹479.75

No, she will still have to pay for shipping.

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दिया गया पाठ्यक्रम/Portion covered: Chapter 04

SECTION-A

1. (a) $5(x+2)$
2. (c) $6x-2$
3. (a) x multiplied by 5
4. (c) $3x$
5. (d) $4x$
6. (c) $4x$
7. (b) $2x+3$
8. (d) 5 x 6
9. (b) $3x+6$
10. (b) 7

SECTION-B

11. (a) $x+9$ (b) $2y-4$

12. Variable: x

    Expression: $2x-6$

13. Expression: $2x+y^2$

    Put values, $x=3\ and\ y=4$

    2x3+$(4)(4)$=6+16=22

14. $2(a+b)+3a=2a+2b+3a=5a+2b$

SECTION-C

15. Expression: $5x+3-2x+4x-1$ and $x=2$

    On Solving: $7x+2=7(2)+2=14+2=16$

16. This is a multiplication pattern: 3,6,9,12

Each term = $3(n)$

(a) General term= 3n

(b) 10^{th} term= 3x10=30

17. (a) One notebook cost ₹25

x notebooks cost= $25(x)$

(b)y notebooks cost= 25y

1 pen cost= ₹10

Total cost = 25y+10

SECTION-D

18. (a) Expression for total cost: ₹$3x$ + ₹$5y$ + ₹$2z$

So, Expression: $3x + 5y + 2z$

(b)Already simplified

(c) Substitute values: x=4, y=3, z=5

3x= 3x4=12

5y=5x3=15

2z=2x5=10

Now add: 12+15+10= ₹37

SECTION-E

19. (a) 8x2=16

(b) Multiplication: 4x2=8

(c) $(6 + 2) = 8$

8x5=40

40-3=37

Brackets are solved first, then multiplication, then subtraction. BODMAS ensures correct order.

OR

Correct: 2x3=6

7+6=13

13-1=12

Student's way: (7+2) =9

(3-1) =2

9x2=18, which is wrong

20. (a) Total distinct customers= p +q + r (flags=same number as customers)

(b) p=10, q=15, r=5

Putting the values we get, 10+15+5= 30 flags

(c) 2r means double , which is wrong

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दिया गया पाठ्यक्रम/Portion covered: Chapter 05

1. **(a)** Equal **Explanation:** Equal

2. **(a)**On opposite sides of the transversal and inside the two lines

   Explanation:

   On opposite sides of the transversal and inside the two lines

3. **(c)** At least two pairs of vertically opposite angles.

   Explanation:

   At least two pairs of vertically opposite angles.

4. **(d)** 90°

   Explanation:

   90°

5. **(a)**They never meet

   Explanation:

   They never meet

6. **(d)** Transversal

   Explanation:

   Transversal

7. **(a)**Perpendicular to the other line

   Explanation:

   Perpendicular to the other line

8. **(b)**Ruler and set square

   Explanation:

   Ruler and set square

9. **(d)** Intersecting **Explanation:**

   Intersecting

10. **(a)**The perpendicular drawn from one line to the other

    Explanation:

    The perpendicular drawn from one line to the other

Section B

11. **(a)** True

    Explanation: True

12.

(b) False

Explanation:

False

13. perpendicular
14. linear
15. When we fold a square sheet, the folds act like lines. Opposite folds are parallel and adjacent folds forming right angles. This shows perpendicularity. Repeating folds shows patterns and helps us visually understand geometric relationships.
16. Intersecting lines are two lines that cross each other at exactly one point. For example, the hand so far clock at 12:15intersect.

Section C

17. Award 3 marks for correct proof.
18. Award 3 marks for correct proof
19. Award 3 marks for correct proof

Section D

20. Alternate angles are angles on opposite sides of a transversal and inside two lines. If lines are parallel, alternate angles are equal. Relationship between alternate angles , corresponding angles and vertically opposite angles can also be defined.

Section E

21.

1. $\angle ABC = 180° - 132° = 48°$
2. $x = 132°$ $y = 48°$
3. Supplementary angle:

$180° - 32° = 148°$

Complementary angle:

$90° - 32° = 58°$

4. 100°, 80°

22. a.90°

b. By folding a perpendicular to an existing crease and then a gain a perpendicular to that ,through the required point.

c. By checking if both creases form right angles using folding symmetry. If the two folds form perfect 'L' shapes, they are perpendicular.

OR

No, the lines are not perfectly perpendicular. In geometry, precision matters. Slight deviation means they’re approximately, but not truly, perpendicular.

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दिया गया पाठ्यक्रम/Portion covered: Chapter 06

1. **(c)** Diagonal cross
   Explanation: Diagonal cross
2. **(a)** 64
   Explanation:
   64
3. **(b)** Even
   Explanation:
   Even
4. **(a) 2**
   Explanation:
   2
5. **(a)** It is divisible by 9
   Explanation:
   It is divisible by 9
6. **(c)** 19
   Explanation:
   19
7. **(c)** 48
   Explanation:
   48
8. **(b)** All of these
   Explanation:
   All of these
9. **(d)** 45
   Explanation:
   45
10. **(b)** Population growth
    Explanation:
    Population growth

Section B

11.

(b) False

Explanation:

False

12.

(b) False

Explanation:

False

13. 4
14. 0, 1, 1, 2, 3, 5, 8……
15. In the first 50 natural numbers, the digits 1 to 5 each occur frequently, but number 1 occurs in every ten numbers as tens digit and units digit. By counting frequency, digit 1 is most frequent. Sum of all occurrences of digit 1 in numbers 1 to 50 is:
    1 + 10 + 11 + 12 + ... + 19 + 21 + 31 + 41 = Sum of all numbers with 1 in tens or units place. Calculating exact sum:
    Tens place 1: 10 to 19 ⟶ sum = (10+19)/2 * 10 = 145
    Units place 1: 1, 21, 31, 41 ⟶ sum = 1 + 21 + 31 + 41 = 94
    Total sum = 145 + 94 = 239
    So, digit 1 occurs most frequently and the sum is 239.
16. We are asked to find the digit in the units place of:

    $7 \times 3 \times 9$

    Multiply the numbers step by step.
    First,

    $7 \times 3 = 21$

    Now,

    $21 \times 9 = 189$

    Look at the units digit of the final product.
    The number 189 has 9 in the units place.
    So, the digit in the units place is: 9
    Understanding the Pattern:
    To find the units digit of any product quickly, follow these steps:
    1. Ignore all other digits except the units digit of each number.
       For example, for $7 \times 3 \times 9$:
       - Units digit of 7 is 7
       - Units digit of 3 is 3
       - Units digit of 9 is 9
    2. Multiply the units digits only:

    $7 \times 3 = 21 \longrightarrow$ units digit is 1

    $1 \times 9 = 9$

    So, the units digit of the full product is also 9.
    This pattern helps save time in large multiplications where only the last digit is needed.

Section C

17. Given: Multiply 12×14
    We need to find the digit in the tens place of the product.
    Multiply the numbers
    $12 \times 14 = 168$
    Identify the tens place
    In the number 168,
    - The ones digit is 8
    - The tens digit is 6
    - The hundreds digit is 1 The

    digit in the tens place is 6.

Explanation:

To find the tens digit, we look at the second digit from the right.

In 168, counting from the right:

- 1st digit: 8 (ones place)
- 2nd digit: 6 (tens place)

Important in real life:

Knowing place values helps in:

Money: ₹168 means 6 tens = ₹60

Packing: 6 full boxes of 10 items each

Measurements: Helps in reading rulers, meters, etc.

It is useful in banking, shopping, budgeting, and calculations in all fields.

18. **The Fibonacci sequence is a special pattern where each term is found by adding the two previous terms.**

The sequence starts from 0 and 1, like this:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...

a. **Find the 10th term in the Fibonacci sequence:**

We count the terms:

1st term = 0

2nd term = 1

3rd term = 1

4th term = 2 5th

term = 3 6th

term = 5 7th

term = 8 8th

term = 13 9th

term = 21 **10th**

term = 34

So, the **10th term is 34**.

b. **Calculate the sum of the first 10 Fibonacci numbers:**

Add the first 10 terms:

0 + 1 + 1 + 2 + 3 + 5 + 8 + 13 + 21 + 34 = **88**

19. To Prove: The sum of any two odd numbers is even.

Algebraic Proof:

Let the two odd numbers be:

1st odd number = 2m + 1

2nd odd number = 2n + 1

(where m and n are whole numbers)

Sum = (2m + 1) + (2n + 1)

= 2m + 2n + 2

= 2(m + n + 1)

Since the result is divisible by 2, the sum is even.

Section D

20. Units place 7 appears in: 7, 17, 27, 37, 47, 57, 67, 77, 87, 97 → 10 times

Tens place 7 appears in: 70, 71, 72, 73, 74, 75, 76, 77, 78, 79 → 10 times

Total numbers containing 7 = 19 (since 77 counted twice)

Sum of units place 7: 7 + 17 + 27 + 37 + 47 + 57 + 67 + 77 + 87 + 97 = 517

Sum of tens place 7 excluding 77: 70 + 71 + 72 + 73 + 74 + 75 + 76 + 78 + 79 = 658

Adding 77 once more: 77

Total sum = 517 + 658 + 77 = 1252

Section E

21. a. 2 + 4 + 3 = 9

b. Yes, it ends in 5.

c. 1 + 8 + 0 = 9

→ divisible by 3 and 9

Ends in 0

→ divisible by 5 and 10

Even → divisible by 2 → divisible by 6 (also divisible by 3)

So, 180 is divisible by all.

OR

Sum = 9 → divisible by 3 and 9 → 243 passes both rules.

22. a. 45

b. Magic square

c. Total sum = 1 + 2 + ... + 9 = 45

A 3 × 3 square has 3 rows.

So, sum of each row = 45 ÷ 3 = 15

OR

If any number is repeated or missing, the total will not be 45.

Also, the equal sum in each row, column, and diagonal (which is the magic property) will not hold. So, all numbers from 1 to 9 must be used once to maintain the balance and pattern of a magic square.

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दिया गया पाठ्यक्रम/Portion covered: Chapter 07 (A Tale of Intersecting Lines)

SECTION A

1. (b) Equilateral
2. (c) Right
3. (a) Isosceles
4. (c) 45°
5. (d) 17 units, 5 units, 22 units
6. (b) 13 cm
7. (a) QR
8. (d) AB + BC = CA
9. (b) 3, 4, 6
10. (d) All of these

SECTION B

1. Proper steps of construction are to be followed.
2. Proper steps of construction are to be followed.
3. (a) No (b) Yes
4. Proper steps of construction are to be followed.

SECTION C

1. Proper steps of construction are to be followed.
2. Proper steps of construction are to be followed.
3. Proper steps of construction are to be followed.

SECTION D

1. (a) No (b) Yes (c) No (d) Yes (e) Yes

SECTION E

1. (a) 6 m (b) 20 m (c) No (d) No
2. (a) Yes (b) 120 m^2 (c) 60 m (d) Yes