BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

MID-TERM EXAMINATION 2023-24

MATHEMATICS

Class : VII

Date   : 09-10-23

Admission No.:

Duration : 3 Hrs

Max. Marks : **80**

Roll No.:

General Instructions:

1. This Question Paper has 5 Sections A, B, C, D and E.

2. Section A has 20 MCQs carrying 1 mark each

3. Section B has 5 questions carrying 02 marks each.

4. Section C has 6 questions carrying 03 marks each.

5. Section D has 4 questions carrying 05 marks each.

6. Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.

7. All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided. An internal choice has been provided in the 2marks questions of Section E

8. Draw neat figures wherever required.

SECTION A
Section A consists of 20 questions of 1 mark each.

1. Closure property does not hold good in integers for   1
   (a) addition
   (b) multiplication
   (c) subtraction
   (d) none of these

2. Product of two integers is 256, if one of the integers is (-8), then the other is   1
   (a) 32
   (b) -32
   (c) +248
   (d) -264

3. The product of a positive integer and (-1) is   1
   (a) -1
   (b) positive

(c) negative

(d) 1

4. The multiplicative identity for integers is   1

(a) 1

(b) -1

(c) 0

(d) none of these

5. When 0 divided by (-10), we get   1

(a) – 10

(b) 10

(c) 1

(d) 0

6. Which of the following is an improper fraction?   1

(a) 2/7

(b) 3/5

(c) 8/3

(d) none of these

7. When the product of two fractions is unity, each is called the   1

(a) denominator of the other

(b) numerator of the other

(c) additive inverse of the other

(d) reciprocal of the other

8. When the sum of two fractions is unity, each is called the: 1

(a) denominator of the other

(b) numerator of the other

(c) additive inverse of the other

(d) reciprocal of the other

9. Find 1/4 of 220.   1

(a) 45

(b) 55

(c) 65

(d) 75

                                                                                             1

10. Write the following statement in the form of an equation. "The sum of three times x and 10 is   1
    23.

(a) 3x – 10 = 23

(b) 3x + 23 = 10

(c) 3x + 10 = 23

(d) 3x − 23 = 10

11. Write the following statement in the form of an equation "The number b divided by 6 gives 5".   1
   (a) b − 5 = 6
   (b) 5b = 6
   (c) b + 5 = 6
   (d) none of these

12. Which of the following is the value of x such that 5x − 12 = -2?   1
   (a) 2
   (b) -2
   (c) 4
   (d) none of these

13. What value of p makes the given equation true.   1
   p/5+ 19 = 20
   (a) 5
   (b) 10
   (c) 15
   (d) none of these

14. If the LHS and RHS of an equation are interchanged, then   1
   (a) The equation remains the same.
   (b) The value of the variable becomes half.
   (c) The value of the variable becomes double.
   (d) The value of the variable becomes zero.

15. When the sum of the measures of two angles is 90°, the angles are called   1
   (a) adjacent angles
   (b) complementary angles
   (c) vertically opposite angles
   (d) supplementary angles

16. If a transversal intersects two parallel lines then the interior angles on the same side of the   1
   transversal are
   (a) vertically opposite angles
   (b) supplementary angles
   (c) complementary angles
   (d) alternate angles

17. What is the mode of the following set of numbers?   1
   1, 2, 3, 2, 1, 5, 6, 1
   (a) 3
   (b) 1
   (c) 2
   (d) 5

18. The median of 1, 4, 1, 2, 0, 1, 5, 4, 2, 2 is   1
   (a) 0
   (b) 1
   (c) 2

(d) 4

19. How many medians can a triangle have?   1
    (a) 1
    (b) 2
    (c) 3
    (d) 6

20. The measure of each angle of an equilateral triangle is   1
   (a) 30°
    (b) 60°
    (c) 90°
    (d) 45°

SECTION B
Section B consists of 5 questions of 2 marks each.

21. Write down a pair of integers whose: (a) sum is −17 (b) difference is −10   2

Or

Solve : (-7) + (8) -(-9).

22. The scores in mathematics test (out of 25) of 15 students is as follows: 2
    19, 25, 23, 20, 9, 20, 15, 10, 5, 16, 25, 20, 24, 12, 20
    Find the mode and median of this data. Are they same?

23 In the adjoining figure, name the following pairs of angles.   2
    (i) Obtuse vertically opposite angles
    (ii) Adjacent complementary angles
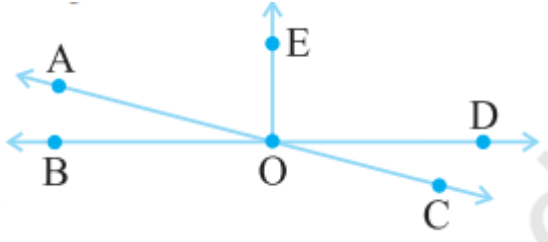
24 A 15 m long ladder reached a window 12 m high from the ground by placing it against a wall at a   2
    distance 'a'. Find the distance of the foot of the ladder from the wall.
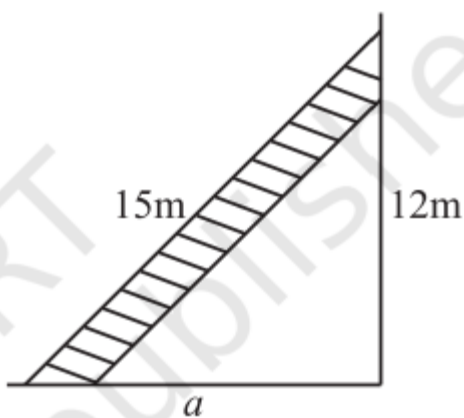
25 Convert the following equations in statement form: 2

(a) 5x = 20
(b) 3y + 7 = 1

Or

Convert the following statements into equations.
(i) 3 added to a number is 11
(ii) 2 subtracted from a number is equal to 15.

SECTION C
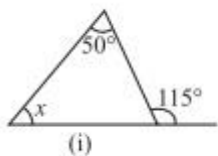### Section C consists of 6 questions of 3 marks each.

26 Find each of the following products: 3
    (a) 37 × (−1) (b) (−1) × 225 (c) (−21) × (−40)

27 The ages in years of 10 teachers of a school are: 32, 41, 28, 54, 35, 26, 23, 33, 38, 40 (i) What is   3
    the age of the oldest teacher and that of the youngest teacher?
    (ii) What is the range of the ages of the teachers?
    (iii) What is the mean age of these teachers?

28 In the adjoining figure, identify (i) the pairs of corresponding angles. (ii) the pairs of alternate   3
    interior angles. (iii) the pairs of interior angles on the same side of the transversal
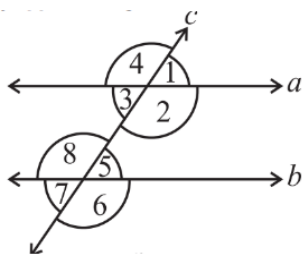
29 The sum of three consecutive multiples of 2 is 18. Find the numbers.   3

Or

    If one of the complementary angle is twice the other, find the angles .

30   A vehicle covers a distance of 43.2 km in 2.4 litres of petrol. How much distance will it cover in   3
    one litre of petrol?

Or

    A vehicle runs at a speed of 50 km/hr . How much distance will it cover in 90 minutes?

31 Find the value of the unknown interior angle x in the following figures: 3
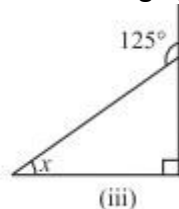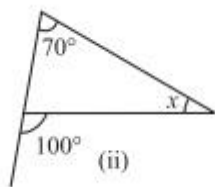
SECTION D
Section D consists of 4 questions of 5 marks each.

32 A shopkeeper earns a profit of Rs.10 by selling one pen and incurs a loss of Rs.4 per pencil while   5
   selling pencils of her old stock.

(i) In a particular month she incurs a loss of Rs. 5. In this period, she sold 45 pens. How many pencils did she sell in this period?
(ii) In the next month she earns neither profit nor loss. If she sold 70 pens, how many pencils did she sell?

33   Sale of English and Hindi books in the years 1995, 1996, 1997 and 1998 are given below: 5

Years	1995	1996	1997	1998
English	350	400	450	620
Hindi	500	525	600	650

Draw a double bar graph and answer the following questions:
(a) In which year was the difference in the sale of the two language books least?.
(b) Can you say that the demand for English books rose faster? Justify

34   Find the values of the unknowns x and y in the following diagrams: 5
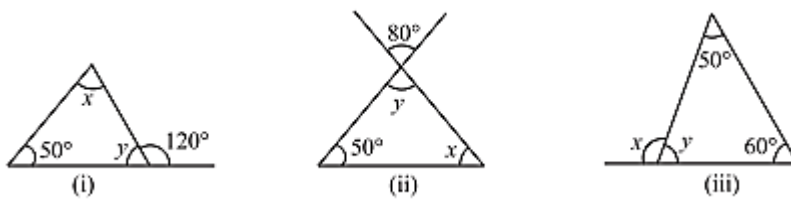
Or

A plane flies 320 km due west and then 240 km due north. Find the shortest distance covered by the plane to reach its original position.

35   Solve   5
(i) 3x + 9 = 27
(ii) 5y-9 = 36
(iii) 2x + 9/2 = 45/2
(iv) 3d = - 54

Or

The length of a rectangle is twice its breadth. If its perimeter is 60 cm, find the length and the breadth of the rectangle.

SECTION E
Section E consists of 3 questions of 4 marks each.

36   Read the bar graph ,which shows the number of books sold by a bookstore during five   4
consecutive years and answer the following questions:

Scale: 1 unit = 100 books
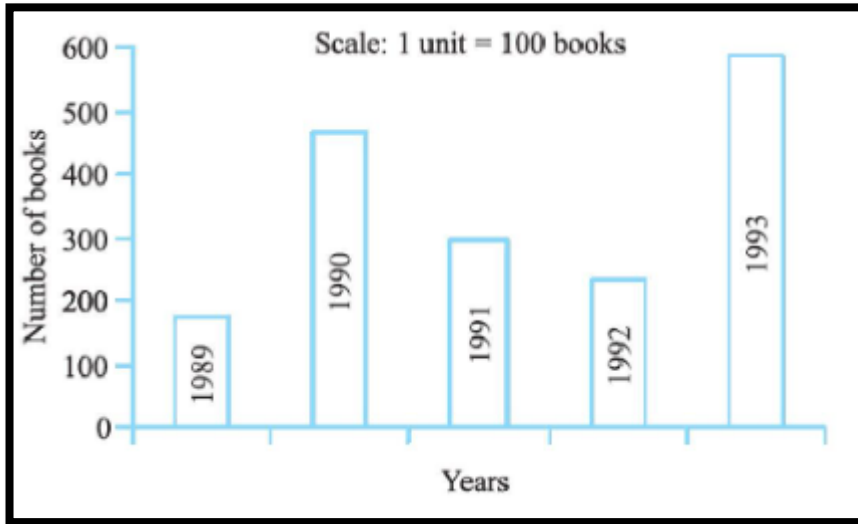
(i) About how many books were sold in 1989? 1990? 1992?
(ii) In which year were about 475 books sold? About 225 books sold?
(iii) In which years were fewer than 250 books sold?

37 The temperature at 12 noon was 10°C above zero. If it decreases at the rate of 2°C per hour until   4
    midnight
    (i) at what time would the temperature be 8°C below zero?
    (ii) What would be the temperature at mid-night?
    (iii) What would be the temperature at 8 p.m.?

38 In the following figure, if l || m.   4
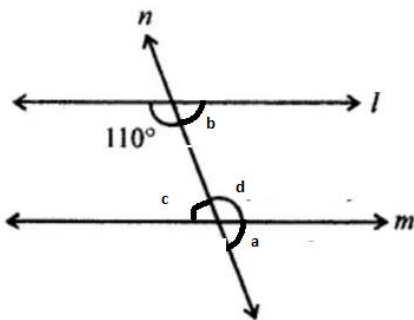
    Find

(i)   ∠ a and state reason for the value.

(ii)   ∠ b and state reason for the value.

(iii) ∠ c , ∠ d and state reason for the value.

                                    Or

(iii) ∠ d + ∠ b and state reason for the value.

            ************END OF PAPER*********