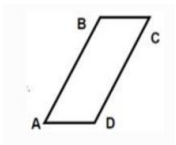
Bhavan's Mathematics Olympiad (BMO) – 2023

Class:- 6 **Subject:-** Mathematics
Time:- 1 Hr. **Total :- 50 Marks**

Instructions :

- **Question no. 1 to 40 carries 1 mark**
- **Question no. 41 to 45 carries 2 mark**

1. The ratio of 30 minutes to 1.5 hours is--
   (a) 1:3 (b) 2:1 (c) 3:2 (d) 2:3
2. What will be the number of lines of symmetry in an equilateral triangle?
   (a) no lines of symmetry (b) one lines of symmetry
   (c) two lines of symmetry (d) three lines of symmetry
3. Convert 17 g 5 dg 3 cg 3 mg into gram.
   (a) 17. 533g (b) 173. 51g (c)17.732g (d) 175.33g
4. The smallest digit which can replace * to make 74*4 divisible by 7?
   (a) 1 (b) 3 (c) 2 (d) 0
5. Subtract the sum of -312 and 192 from the difference of [150-(-250)]
   (a) 280 (b) - 200 (c) – 80 (d) 34
6. If a means +, b means –, c means × & d means ÷, then 18 c 14 a 6 b 16 d 4 = ?
   (a) 63 (b) 254 (c) 288 (d) 1208
7. Leena has 28 books. She gave 4/10 to Reema. How many books does Reema has now.
   (a) 18 (b) 38 (c) 11 (d) 25
8. In a code language if POSE is coded as OQNPRTDF, then the word TYPE will be coded as--
   (a) SUXZOQFD (b) SUXZQOFD
   (c) SUXZOQDF (d) SUXZQODE
9. Three terms x, y, z are said to be in proportion if ____
   (a) x : y = z : y (b) z : x = x :y (c) x : y = y : z (d) y : x = z : x



10. Which of the pair of adjacent angles in the given figure?
    a) ∠B ∠D (b) ∠B ∠C (c) None of these (d) ∠A ∠C
11. The simplest form of the given decimal 0.525 can be written as--
    (a) 525/100 (b) 21/40 (c) 7/10 (d)None of these.
12. Study the following statements and select the correct option.

    Statement 1 : An isosceles trapezium has one line of symmetry.

    Statement 2 : A line segment is not symmetrical about its perpendicular bisector.

    (a) Statement 1 is true but statement 2 is false.

    (b) Statement 1 is false but statement 2 is true.

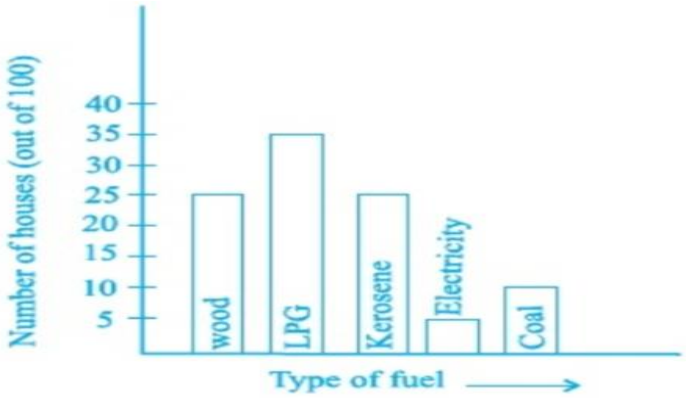
    (c) Both the statement 1 and statement 2 are true.

    (d) Both the statement 1 and statement 2 are false.

13. If the radius of a circle is 8.5 cm then the diameter of the circle is __

(a) None of these (b) 17 cm. (c) 12cm. (d) 8.5 cm.

DIRECTION (14-16) The given bar graph shows the number of houses (out of 100) in a town using different types of fuels for cooking. Study the bar graph carefully answer the following questions.



14. Which fuel is used in maximum number of houses?

(a) Electricity (b) Coal (c) LPG (d) Kerosene

15. How many houses are using coal as fuel?

(a) 5 (b) 25 (c) 35 (d) 10

16. Suppose that the total number of the houses is in the town is 1 lakh.

from the above graph estimate the number of houses using electricity--

(a) 50 (b) 500 (c) 5000 (d) None of these.

17. Which of the following statements is true?

(i) Every decimal cannot be written as a fraction.

(ii) All decimals cannot be represented on the number line.

(iii) Every fraction with denominator 10 can be written in decimal notation and vice versa.

(iv) All of the above statements are true.

(a) i and ii (b) iii and iv (c) iii (d) iv

18. The instrument set in the geometry box having the shape of a triangle is called?

(a) Protractor (b) Compass (c) Divider (d) Set-square

19. In the international place value chart, 1 crore is equal to__

(a) 1 million (b) 10 million

(c) 100 million (d) 100 thousand

20. Which of the following is the Roman numeral for the number 2765 ?

(a) MMDCCXLIV (b) MMDCXLXV

(c) MMDCCLXV (iv) MMCDCLXV

21. Solve : $20 + 21 \div 3 \times 2$

(a) 32 (b) 9 (c) 29 (d) 34

22. How many distinct triangles can be drawn using three of the dots as vertices?

(a)24 (b) 21 (c) 18 (d) 15

23. The estimated sum of the numbers 372 and 249 is (numbers rounded to the nearest tens)

(a)110 (b) 151 (c) 620 (d) 120

24. If two numbers are same, then which of the following relation will be true?

(a)HCF>LCM (b) HCF<LCM

(c) HCF=LCM (d) None of these.

25. Express 25/2% as a fraction.

(a)1/2 (b) 1/8 (c) ¼ (d) 3/4

26. Fill in the gap :The average of first 7 odd numbers is _____ the average of the first 7 even numbers.

(a) greater than (b) less than (c) equal to (d) none of these.

27.Find the simple interest if P= ` 450, R=4%, T= 8 years.

(a) ` 245 (b) ` 134 (c) ` 144 (d) ` 440 .

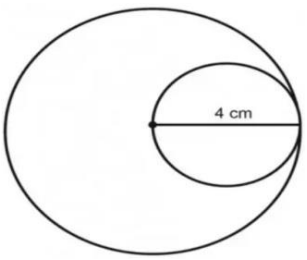
28. A batsman scored 120 runs which included 3 boundaries and 8 sixes. The runs scored by him in sixes is____

(a)40% (b) 60% (c) 75% (d) 80%

29. A driver drives a car at a speed of 8 km/h. The time taken by the driver to cover 20 km is ___

(a)150 min (b) 24 min (c) 150 h (d) 24 h

30. What is (area of large circle) – (area of small circle) in the figure below?



(a) 8 π sq. cm. (b) 10 π sq. cm. (c) 12 π sq. cm. (d)16 π sq. cm

31. Profit % or loss % are always calculated on _____.

(a) Selling price (b) Cost price

(c) both a and b (d) a or b

32. The supplement of the angle 98° is __.

(a)52° (b) 72° (c) 82° (d) 92°

33. Study the following statements and select the correct option.

Statement 1 : Commutative and associative property hold good only for subtraction and division.

Statement 2 : Division by zero is not defined

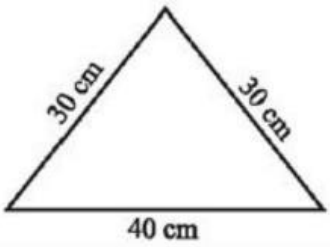
(a) Statement 1 is true but statement 2 is false.

(b) Statement 1 is false but statement 2 is true.

(c) Both the statement 1 and statement 2 are true.

(d) Both the statement 1 and statement 2 are false.

34. The perimeter of the given figure is



(a) 70 cm (b) None of these (c) 60 cm (d) 100 cm

35. The sum of two given numbers P and Q is 56. Their LCM and HCF is 96 and 8 respectively. Find the sum of 1/p +1/q.

(a) 1/6 (b) 7/97 (c) 1/99 (d) 7/96

36. Match column 1 with the name of the types of the angles in column 2.

Column (1)	Column (2)
A. Triangle with length of side 7 cm 8 cm and 9 cm.	1. Acute angle triangle
B. Triangle PQR such as PQ = QR = PR =5 cm.	2. Right angle is oscele.
C. Triangle XYZ with m∠Y=90° and XY=YZ.	3. Equilateral triangle
D. Triangle LMN with m∠L=90°, m∠M=70° and m∠N=80°	4. Scelane triangle

(a) A-1, B-2, C-3, D-4 (b) A-4, B-3, C-2, D-1

(c) A-4, B-1, C-3, D-2 (d) A-2, B-3, C-4, D-1

37. Which of the following have 5 lines of symmetry?

(a) a circle (b) a regular pentagon (c) a quadrilateral (d) a triangle

38. How many right angles do you make if you start facing north and turn anticlockwise to east?

(a) 1 (b) 3 (c) 4 (d) 2

39. The succeeding number of number minus - 4 is

(a) – 1 (b) -2 (c) – 3 (d) - 4

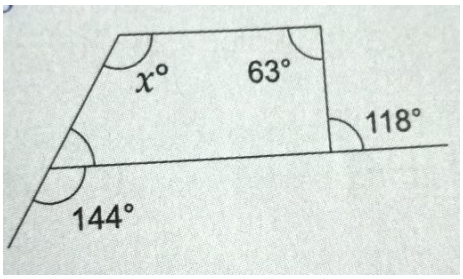
40. If n + 12 =20, which of the following values of the variable and satisfy the equation?

(a) 12 (b) 8 (c) 20 (d) 0

Achiever Section

41. if 4, a, a, 36 are in proportion then a is equal to ____?

(a) 4 (b) 9 (c) 18 (d) 12



42. Find the measure of angle x in the following figure?

(a) 199° (b) 62° (c) 190° (d) 66°

43. Fill in the blanks :

(i) The opposite side of a parallelogram are P and Q.

(ii) A quadrilateral having only one pair of opposite side parallel is called R.

(iii) A parallelogram having all sides equal is called S.

P	Q	R	S
(a) equal	parallel	rectangle	rhombus
(b) equal	non parallel	trapezium	kite
(c) equal	parallel	trapezium	rhombus
(d) equal	parallel	trapezium	kite

44. How many trees can be planted at a distance of 6 metres each around a rectangular plot whose length is

120 m and breadth is 90 m?

(a) 70 (b) 80 (c) 90 (d) 60

45. Ajay's present age is one-third his mother’s present age. If the mother’s age was five times his age 6 years ago, what will be his mother's present age?

(a) 36 (b) 42 (c) 39 (d) 47