



Math1089



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MATHEMATICS

Time allowed: 2 Hours 30 Minutes

Maximum Marks: 80

General Instructions:

Read the following instructions very carefully and strictly follow them:

- (i) This question paper comprises **two** parts – A and B.
 - (ii) There are **38** questions in the question paper. **All** questions are compulsory.
 - (iii) **Part – A**
 - 1. It consists two sections - I and II.
 - 2. Section I has **20** questions of **1** mark each. Internal choice is provided in **5** questions.
 - 3. Section II has **5** questions on case study. Each case study has **5** case-based sub-parts. An examinee is to attempt any **4** out of **5** sub-parts.
 - (iv) **Part – B**
 - 1. Question No **26** to **30** carry **2** marks each.
 - 2. Question No **31** to **35** carry **3** marks each
 - 3. Question No **36** to **38** carry **5** marks each.
 - 4. Internal choice is provided in **2** questions of **2** marks, **2** questions of **3** marks and **1** question of **5** marks.
 - (v) Use of calculators is **not** permitted.
-

PART - A

Section - I

Section I has 20 questions of 1 mark each. Internal choice is provided in 5 questions.

- | | | |
|----|---|---|
| 1. | Find the product of successor and predecessor of 999. | 1 |
| 2. | What is the longest chord in a circle? | 1 |

OR

Find the successor of -50 .

- | | | |
|----|--|---|
| 3. | How many lines of symmetry is there in a compass? | 1 |
| 4. | If two straight lines l and m are perpendicular, what is the angle between them? | 1 |
| 5. | Find the perimeter of a regular pentagon with each side measuring 3 cm. | 1 |
| 6. | Find the number of whole numbers lying between -5 and 5 . | 1 |
| 7. | Draw the lines of symmetry of an equilateral triangle. | 1 |

OR

Find x if 1 metre = x millimetres.

- | | | |
|-----|--|---|
| 8. | Find the number of factors of 16. | 1 |
| 9. | How many diagonals are there in a square? | 1 |
| 10. | What is the predecessor of 1 lakh? | 1 |
| 11. | How many lines of symmetry is there in a protractor? | 1 |

OR

Write the relation between the radius and diameter.

- | | | |
|-----|--|---|
| 12. | Find the number of whole numbers between 38 and 68. | 1 |
| 13. | What is the sum of -6 and -4 ? | 1 |
| 14. | Find y if 100 thousand = y lakh. | 1 |
| 15. | Find the sum of the number of primes between 60 to 80 and 90 to 100. | 1 |

OR

Which one is bigger: LXXV or LXXIV?

- | | | |
|-----|---|---|
| 16. | Two regular Hexagons of perimeter 30 cm each are joined as shown in figure. Find the perimeter of the new figure. | 1 |
|-----|---|---|



- | | | |
|-----|---|---|
| 17. | Find the number if 1 is added to the greatest 7-digit number. | 1 |
| 18. | Find the perimeter of the square whose sides are 5.2 cm. | 1 |

19. Find the value of 2916×0 . 1
20. Write first four multiples of 13. 1

OR

Write the smallest 4-digit number with different digits.

Section-II

Case study based questions are compulsory. Attempt any four sub parts of each question. Each subpart carries 1 mark.

21. Case Study based – 1
Successor and Predecessor

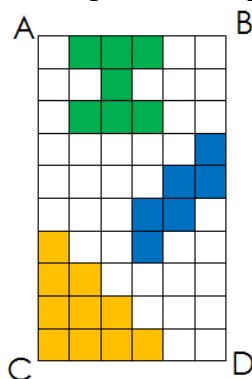
Roman numbers use the following seven letters of the alphabet to write all numbers:

I = 1, V = 5, X = 10, L = 50, C = 100, D = 500 and M = 1000.

- (i) 3249 can be written as 1
 (A) MMMCCXLIX (B) MMMCCXLX
 (C) MMMCCLIX (D) MMMCXLIX
- (ii) MDCLXVII can be written as 1
 (A) 1600 (B) 1667 (C) 1665 (D) 1767
- (iii) Value of IX + XV + XX is 1
 (A) 35 (B) 40 (C) 44 (D) 45
- (iv) $CC - CXXV = ?$ 1
 (A) LXV (B) LXXV (C) LXXXV (D) XCV
- (v) Which of the following numbers is not there in Roman number system? 1
 (A) 699 (B) 501 (C) 4000 (D) 0

22. Case Study based – 2
Area and perimeter of a geometrical figure

In the given figure, each square is of unit length.



- (i) What is the area of the figure ABCD? 1

- (A) 54 units (B) 60 units (C) 66 units (D) 62 units
- (ii) What is the perimeter of the figure shaded in green? 1
 (A) 14 units (B) 17 units (C) 18 units (D) 16 units
- (iii) What is the area of the figure shaded in blue? 1
 (A) 8 units (B) 4 units (C) 6 units (D) 5 units
- (iv) What is the perimeter of the figure shaded in yellow? 1
 (A) 16 units (B) 10 units (C) 12 units (D) 19 units
- (v) What is the perimeter of the figure *ABCD*? 1
 (A) 24 units (B) 32 units (C) 16 units (D) 40 units

23. Case Study based – 3
Number line

Integers can be represented on the number line. Draw a number line and answer the following:

- (i) Which number will we reach if we move 4 units to the right of -2 ? 1
 (A) -6 (B) -4 (C) 2 (D) 3
- (ii) Which number will we reach if we move 5 units to the left of 1 ? 1
 (A) -6 (B) -7 (C) -5 (D) -4
- (iii) If we are at -8 on the number line, in which direction should we move to reach -13 ? 1
 (A) South (B) North (C) Right (D) Left
- (iv) If we are at -6 on the number line, in which direction should we move to reach -1 ? 1
 (A) South (B) North (C) Left (D) Right
- (v) I am at the point *A* on number line. I find positive numbers to my right and negatives to my left. I am at 1
 (A) 0 (B) -1 (C) 1 (D) 5

24. Case Study based – 4
Symmetry in letters

Consider the English letters *A, B, C, . . . , Y* and *Z*.

- (i) Which of the following letters does not have vertical line of symmetry? 1
 (A) *M* (B) *H* (C) *E* (D) *V*
- (ii) Which of the following letters have both horizontal and vertical lines of symmetry? 1
 (A) *X* (B) *E* (C) *M* (D) *K*
- (iii) Which of the following letters does not have any line of symmetry? 1
 (A) *M* (B) *S* (C) *K* (D) *H*
- (iv) Which of the following letters has only one line of symmetry? 1
 (A) *H* (B) *X* (C) *Z* (D) *T*

(v) Which of the following letters does not have horizontal line of symmetry?

- (A) O (B) H (C) E (D) None of these

1

25. **Case Study based – 5**
Factors and multiples

Multiple of a number are obtained when we multiply a given number by various natural numbers. A factor of a number is an exact divisor of that number.

(i) A multiple of 8 is

- (A) 12 (B) 72 (C) 100 (D) 46

1

(ii) A factor of 50 is

- (A) 4 (B) 7 (C) 5 (D) 8

1

(iii) Sum of all the factors of 6 is

- (A) 1 (B) 12 (C) 6 (D) 10

1

(iv) Difference between the largest and smallest factors of 12 is

- (A) 12 (B) 8 (C) 11 (D) 10

1

(v) Number of factors of 24 is

- (A) 9 (B) 7 (C) 8 (D) 10

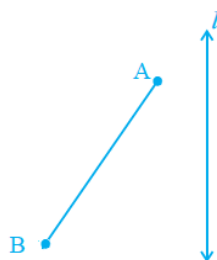
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PART - B

All questions are compulsory. In case of internal choices, attempt any one.

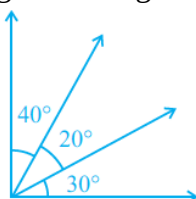
26. Draw the images of points A and B in line l of the given figure and name them as A' and B' respectively. Is $AB = A'B'$? Justify.

2



OR

Find the number of angles in the given figure. Justify your answer.

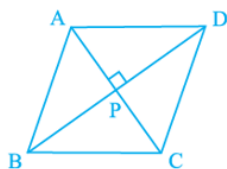


27. Write all the integers between -9 and -1 ? Also find the middle number.

2

28. In the given figure if $AC \perp BD$, then name all the right angles.

2



29. The town newspaper is published every day. One copy has 12 pages. Everyday 11,980 copies are printed. How many total pages are printed every day? 2

30. Express 34 as the sum of two primes. 2

OR

Find the sum of first two common multiples of 2, 3 and 4.

31. Draw all the diagonals of a pentagon. Do they pass through a common point? 3

32. Cost of fencing around a square field is ₹12000. If the cost of fencing per metre is ₹30, find the area of the square field. 3

33. A mobile number consists of ten digits. The first four digits of the number are 9, 9, 8 and 7. The last three digits are 3, 5 and 5. The remaining digits are distinct and make the mobile number, the greatest possible number. What are these digits? 3

OR

Write the greatest 4-digit number and express it in terms of its prime factors.

34. A student multiplied 7236 by 65 instead of multiplying by 56. By how much was his answer greater than the correct answer? 3

35. Find the sum of (-10) , (92) , (84) and (-15) . What is the sum of only negative integers? 3

OR

Draw all the lines of symmetry of the following figure.



36. In a five-digit number, digit at ten's place is 4, digit at unit's place is one fourth of ten's place digit, digit at hundred's place is 0, digit at thousand's place is 5 times of the digit at unit's place and ten thousand's place digit is double the digit at ten's place. Write the number in words. Form the largest 5

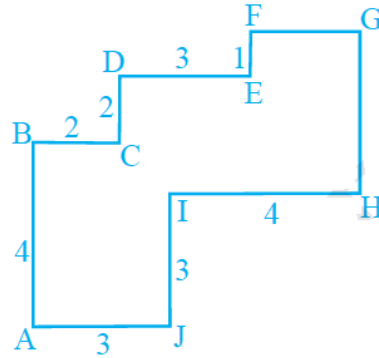
and smallest five digit numbers using the digits of this number once.

OR

Subtract $(-5308 - 302 + 789)$ from the sum $[(-2100) + (-2001) - 21]$.

37. By splitting the figure into rectangles, find its area.

5



38. Find the least number which when divided by 12, 16, 24 and 36 leaves a remainder 7 in each case. Is this number a prime?

5

#Knowing our numbers
#Whole numbers
#Playing with numbers
#Basic geometrical ideas
#Integers
#Mensuration
#Symmetry