IMO

CLASS 6

SAMPLE PAPER

SECTION I : LOGICAL REASONING

1. There is a certain relationship between two given words on one side of :: and one word is given on another side of :: while another word is to be found from the given alternatives having the same relation with this word as the words of the given pair bear. Choose the correct alternative.

Giant : Dwarf :: Genius : ?

(A) Wicked **(B)** Gentle **(C)** Idiot **(D)** Tiny

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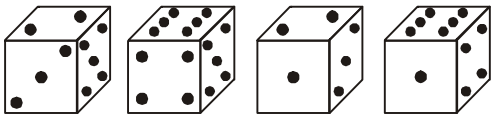
2. Which number will be on the face opposite to the face which has 3 on it ?

(A) 1
(B) 5
(C) 4
(D) 6



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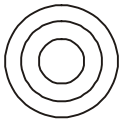
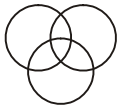
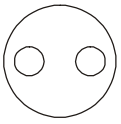
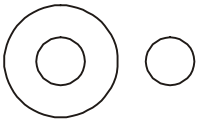
3. Which of the following Venn diagram represents "Boy, student, player" ?

(A)  **(B)**  **(C)**  **(D)** 

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4. The characters of the given matrix follow a certain trend, column wise. Choose the missing character from given options.

5	3	6
2	4	7
1	6	3
30	61	?

(A) 94 **(B)** 76
(C) 73 **(D)** 16

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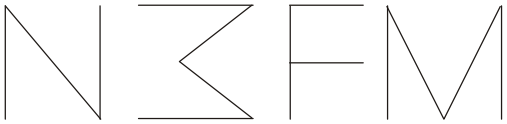
5. Which of the following shapes have a line of symmetry ?



P **Q** **R** **S**

(A) P and Q only **(B)** P and R only
(C) Q and R only **(D)** Q and S only

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6. Select a figure from the given options which when placed in the blank space of Fig.(X) would complete the pattern.

(A) **(B)**

(C) **(D)**

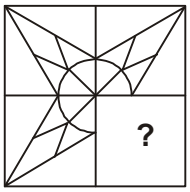

Fig.(X)

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7. The letters *S* and *T* stand for numbers. If *S* + 50 = *T* + 100, which expression is true?

(A) $S = T$ **(B)** $S > T$ **(C)** $S - T = 100$ **(D)** $S < T$

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8. Class A has a lower enrolment than Class B.
Class C has a lower enrolment than Class B.
Class A has a higher enrolment than Class C.
If the first two statements are true, the third statement is _____

(A) True **(B)** False **(C)** Uncertain **(D)** None of these

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9. **Rohan put his timepiece on the table in such a way that at 9:15 P.M. the hour hand points to North. In which direction will the minute hand point at 6:30 P.M. ?**

(A) East **(B)** South **(C)** North **(D)** West

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10. **A teacher asked 3 students of a basketball team to attempt 20 free throws each during practice. The given table shows the number of free throws each player made in 20 attempts. Based on the information in the table, which is the most reasonable prediction of the average number of free throws by X, Y, Z that they will make out of 60 attempts?**

Free throws

Player	Number of free throws made
X	12
Y	18
Z	15

(A) 12 **(B)** 60 **(C)** 15 **(D)** 45

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11. **If in a certain language, REMOTE is coded as ROTEME, which word would be coded as PNIICC?**

(A) NPIICC **(B)** IPCCIN **(C)** PICNIC **(D)** PICNCI

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12. **Arrange the following words in a meaningful sequence.**
1. CONSULTATION 2. ILLNESS 3. DOCTOR 4. TREATMENT 5. RECOVERY

(A) 2, 3, 1, 4, 5 **(B)** 2, 3, 4, 1, 5 **(C)** 4, 3, 1, 2, 5 **(D)** 5, 1, 4, 3, 2

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13. **Letters of the word have been jumbled up. Each letter has been numbered and the word is followed by four options. Choose the options which gives the correct order of the letters to form a meaningful word ?**

T	I	R	B	H	G
1	2	3	4	5	6

(A) 1, 3, 2, 4, 6, 5 **(B)** 3, 2, 6, 5, 4, 1 **(C)** 4, 3, 2, 6, 5, 1 **(D)** 4, 5, 2, 3, 6, 1

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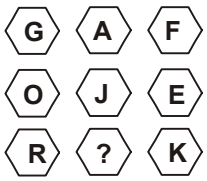
14. **Which letter replaces the question mark ?**



(A) M **(B)** P

(C) G **(D)** S

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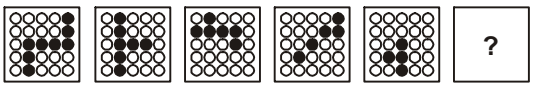
15. **Which of the following options can replace the last grid ?**



(A) **(B)** **(C)** **(D)**

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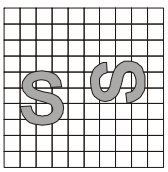
16. **Two different positions of a letter are given. Which of the following options describe its transformation ?**



(A) Reflection
(B) Rotation
(C) Translation
(D) None of these

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17. **Which symbol replaces the question mark if we compare the shaded part of Fig. I & Fig. II ?**

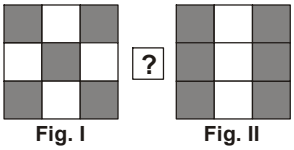


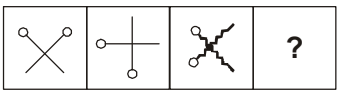
Fig. I Fig. II

(A) < **(B)** >

(C) = **(D)** Can't say

18. The given question consists of figures 1, 2, 3 and 4 which constitute the Problem Set. There is a definite relationship between figures 1 and 2. Establish a similar relationship between figures 3 and 4 by selecting a suitable figure from the option that would replace the question mark (?) in Fig. (4).

Problem Set



(A) **(B)** **(C)** **(D)**

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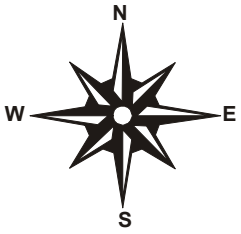
19. A truck departs from a distribution center. From there, it goes 2 m west, 3 m north and 3 m south. How far and in which direction must the truck go to get back to the distribution center ?



(A) 4 m west **(B)** 4 m east

(C) 2 m west **(D)** 2 m east

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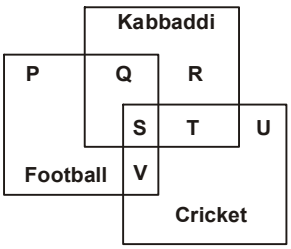
20. Study the diagram carefully and identify the students who play football and cricket but not Kabbaddi.



(A) Q

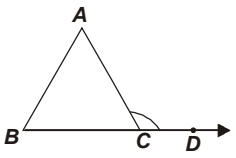
(B) V

(C) T

(D) S

SECTION II : MATHEMATICAL REASONING

21. In the adjoining figure, find $\angle ACD$, if $AB = BC = AC$.



(A) 90° **(B)** 150°

(C) 120° **(D)** 180°

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22. In a class room there are $3x$ rows of benches. If each row has $4xy$ benches and each bench can accommodate x students, determine the number of students in the room if it is full upto its capacity.

(A) $6x^3y$ **(B)** $12x^2y$ **(C)** $12x^3y$ **(D)** $16x^4y$

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23. Which of the following numbers is equal to 1 billion ?

(A) 10 lakh **(B)** 1 crore **(C)** 10 crore **(D)** 100 crores

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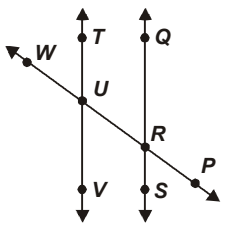
24. Match Column A and Column B with the help of adjoining figure:



Column A	Column B
(i) Vertically opposite angles	(a) $\angle QRU$ and $\angle TUW$
(ii) Alternate angles	(b) $\angle QRP$ and $\angle SRU$
(iii) Corresponding angles	(c) $\angle SRP$ and $\angle TUW$

(A) (i)-a, (ii)-b, (iii)-c **(B)** (i)-b, (ii)-c, (iii)-a

(C) (i)-b, (ii)-a, (iii)-c **(D)** (i)-c, (ii)-b, (iii)-a

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25. The final marks in mathematics of 25 students are as follows :

Use the data to find the value of P and Q respectively in the frequency chart shown below.

55, 48, 23, 27, 47, 49, 33, 45, 86, 47, 59, 86, 53, 62, 58, 38, 59, 64, 71, 60, 84, 56, 61, 89, 31

Marks in Mathematics

Marks (Mathematics)	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89
Number of Students	2	3	5	P	4	Q	4

(A) 1, 6 **(B)** 5, 5 **(C)** 4, 3 **(D)** 6, 1

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26. The ratio of story books in the library to other books is 8 : 7. The total number of story books is 800. The total number of books in library is ____.

(A) 350 **(B)** 450 **(C)** 1200 **(D)** 1500

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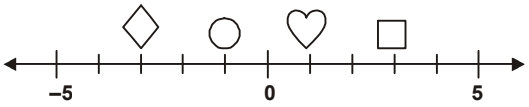
27. Which symbol is located at –1 on the number line shown below?



(A) **(B)** **(C)** **(D)**

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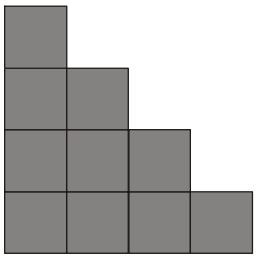
28. The given figure is made up of 10 squares of the same size. The area of the figure is 40 cm^2. Find the perimeter of the figure.



(A) 32 cm

(B) 28 cm

(C) 24 cm

(D) 36 cm

---

29. Which of the following digits makes the given number sentence true ?

902081_?_ is divisble by 11.

(A) 1 **(B)** 3 **(C)** 4 **(D)** 9

---

30. The given table shows the area, in square kilometres, of four lakes.

Lake E has a greater area than Lake M but a smaller area than Lake S. Which could be the area of Lake E ?

Area of Four Lakes

Lake	Area (km^2)
H	59,600
M	57,800
S	82,100
O	18,960
E	?

(A) 76,760 km^2

(B) 57,800 km^2

(C) 25,700 km^2

(D) 18,960 km^2

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31. Which of the following is the smallest counting number ?

(A) 0 **(B)** 1 **(C)** 10 **(D)** None of these

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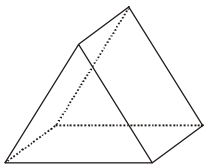
32. How many faces does the given figure has ?



(A) 4

(B) 5

(C) 6

(D) 2

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33. Rohit rolled 3 fair number cubes, and the numbers shown below came out on top. How many 3-digit numbers can be made using these digits if no digit is repeated ?

(A) 6 **(B)** 9 **(C)** 12 **(D)** 15

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34. Find the value of –26 – 20 + 33 –(–33) + 24 + 21 –(–25) –26 – 14.

(A) 60 **(B)** 56 **(C)** 50 **(D)** 24

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35. Kartik is *k* years old. Rehaan's age, *r*, is 6 less than 2 times Kartik's age. Which of the following equations best represents Rehaan's age?

(A) $r = (6 - 2)k$ **(B)** $k = 2r - 6$ **(C)** $r = 2k - 6$ **(D)** $k = (6 - 2)r$

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36. Abhay found the area of a square to be 36 square metres. Which of the following could be used to find the length (*l*) of one edge of the square?

(A) $l^2 = 6 \times 12$ **(B)** $l^2 = 12 \div 6$ **(C)** $l^2 = 6 \times 6$ **(D)** $l^2 = 6 \times 2$

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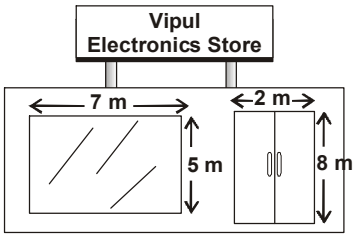
37. Vipul Electronics Store is having a sale. To advertise the sale, the store manager wants to decorate the store door and window with colourful ribbon.
How many metres of ribbon will be needed to outline the 4 sides of the door and window ?



(A) 35 m **(B)** 24 m

(C) 36 m **(D)** 44 m

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38. The roman numeral for 1679 is _____

(A) CCCXXMIX **(B)** MDCLXXIX **(C)** MDCCXIX **(D)** MMMDCCVI

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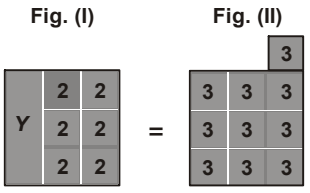
39. In figures (I) & (II) areas of each smaller part is written in it. If area of figure (I) is equal to area of figure (II), then find the value of *Y* ?



(A) 2

(B) 12

(C) 18

(D) 4

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40. Sneha is counting by 3's. If she starts counting at –30, what is the sum of two missing numbers?

–30, –27, –24, –21, ___?___, ___?___, –12

(A) –33 **(B)** –3 **(C)** 43 **(D)** 33

SECTION III : EVERYDAY MATHEMATICS

41. At a park, Ashwin intends to hire a buggy to help him get around more easily. The given table shows the rate for hiring a buggy.

Deposit	**₹ 24**
First hour	**₹ 12**
Every additional hour and part thereof	**₹ 10**

Ashwin intends to hire the buggy from 9:15 a.m. to 2:15 p.m. How much does he have to pay?

(A) ₹ 66 **(B)** ₹ 46 **(C)** ₹ 52 **(D)** ₹ 76

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42. There were 180 members in the club last year. The membership decreased by 20% this year. How many members decreased this year ?

(A) 12 **(B)** 25 **(C)** 36 **(D)** 20

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43. A bus travels 126 km in 3 hours and train travels 315 km in 5 hours, then the ratio of their respective speeds is _____.

(A) 2 : 5 **(B)** 2 : 3 **(C)** 5 : 2 **(D)** 25 : 6

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44. Aryan travelled 5 km 52 m by bus, 8 km 165 m by car and the rest 480 metres he walked. How much distance did he travel in all ?

(A) 16.397 km **(B)** 16.697 km **(C)** 13.976 km **(D)** 13.697 km

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45. Niharika earns ₹ 14579 each month by selling books. Which of the following is the best estimate in nearest thousands, she earns in 2 months ?

(A) ₹ 30,000 **(B)** ₹ 20,000 **(C)** ₹ 35,000 **(D)** ₹ 30,800

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46. Ms. Neha needs to replace the batteries in 20 calculators. Each calculator uses 5 batteries. The batteries are sold in package of 25. How many package of batteries does Ms. Neha need to buy?

(A) 64 **(B)** 4 **(C)** 80 **(D)** 5

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47. Coach Kabir needs to buy 20 T-shirts for the girl's basketball team. The list below shows the prices of T-shirts at 2 stores.

(i) Store X : One T-shirt costs ₹ 150

(ii) Store Y : A package of six T-shirts costs ₹ 950.

What is the amount of money coach Kabir will spend in all if he buys 12 T-shirts from store Y and 8 T-shirts from store X ?

(A) ₹ 4050 **(B)** ₹ 1450 **(C)** ₹ 2600 **(D)** ₹ 3100

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48. Sasha is using a wooden strip $\frac{9}{16}$ m long to make a picture frame. If she cuts off a piece that is $\frac{3}{8}$ m long, which fraction best represents the portion that is left of the original strip?

(A) $\frac{13}{8}$ m **(B)** $\frac{15}{16}$ m **(C)** $\frac{3}{16}$ m **(D)** $\frac{1}{8}$ m

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49. 15 men can finish a piece of work in 40 days. The number of days in which the same work can be done by 20 men is _____.

(A) 20 **(B)** 30 **(C)** 48 **(D)** 15

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50. Mohit sliced an orange into circular pieces to put into a bowl of punch. The piece shown below had a radius of 4 centimetres. Which of the following expressions can be used to find the approximate area of this piece of orange?

(A) $\pi \times (4)^2$

(B) $4 \times \pi$

(C) $2 \times \pi \times 7$

(D) $2 \times \pi \times 4$

SPACE FOR ROUGH WORK

ANSWER KEYS

1.	(C)	**2.**	(C)	**3.**	(B)	**4.**	(A)	**5.**	(D)	**6.**	(A)	**7.**	(B)	**8.**	(C)	**9.**	(D)
10.	(C)	**11.**	(C)	**12.**	(A)	**13.**	(C)	**14.**	(C)	**15.**	(B)	**16.**	(B)	**17.**	(A)	**18.**	(D)
19.	(D)	**20.**	(B)	**21.**	(C)	**22.**	(C)	**23.**	(D)	**24.**	(B)	**25.**	(D)	**26.**	(D)	**27.**	(B)
28.	(A)	**29.**	(C)	**30.**	(A)	**31.**	(B)	**32.**	(B)	**33.**	(A)	**34.**	(C)	**35.**	(C)	**36.**	(C)
37.	(D)	**38.**	(B)	**39.**	(C)	**40.**	(A)	**41.**	(D)	**42.**	(C)	**43.**	(B)	**44.**	(D)	**45.**	(A)
46.	(B)	**47.**	(D)	**48.**	(C)	**49.**	(B)	**50.**	(A)								