Time : 1 Hr.



wax.

Max. Marks : 60

FORM NUMBER

PAPER CODE



IMO (STAGE-2) MOCK TEST

(ACADEMIC SESSION 2023-2024)

Pre Foundation Division

CLASS VIII

MOCK TEST # 01

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

- 1. Answers are to be given on a separate OMR sheet.
- 2. This test contains Mathematical Reasoning (45 Questions) and Achievers Section (5 Questions). Total questions are **50**. Duration of test is **1 Hr**.
- 3. Each question in **Achievers Section carries 3** marks whereas all other questions carry 1 mark. There is no negative marking for wrong answers. Total marks are **60**.
- 4. Mark your answers for questions 1–50 on the OMR sheet by darkening the circles.
- 5. If you do not know the answer to any question, do not waste time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and attempt them.
- 6. Since the time allotted for this question paper is very limited you should make the best use of it by not spending too much time on any one question.
- 7. Rough work can be done anywhere in the booklet but not on the OMR sheet/loose paper.

Prepare to be a Winner with Class24

CLASS24

CLASS – VIII_IMO STAGE – II

TEST - 1

MATHEMATICS

1. Three different containers contain different quantities of mixtures of milk and water, whose measurements are 403 kg, 434 kg and 465 kg. What biggest measure must be there to measure all the different quantities exactly?

(1) 1 kg (2) 7 kg (3) 31 kg (4) 41 kg **Direction (2 and 3) :** Study the following graph carefully and answer the questions given below : **Total Number of Boys and Girls In Various Colleges**



- 2. The total number of girls in colleges D and E together are approximately what per cent of the total number of girls in colleges A, B and C together?
 - (1) 87% (2) 75% (3) 70% (4) 88%
- **3.** What is the respective ratio of the number of boys in college D to the number of boys in college B?

(1) 5:4 (2) 8:9 (3) 4:5 (4) 9:8

- 4. A coin is tossed 50 times and head appears 30 times. What is the probability of getting a tail ? (1) 1 (2) 0 (3) 2/3 (4) 2/5
- 5. The value of

$$\frac{x^{2} - (y - z)^{2}}{(x + z)^{2} - y^{2}} + \frac{y^{2} - (x - z)^{2}}{(x + y)^{2} - z^{2}} + \frac{z^{2} - (x - y)^{2}}{(y + z)^{2} - x^{2}}$$

is equal to
(1) -1 (2) 0 (3) 1 (4) 1/2

- 6. The length of a rectangular field is 11 m more than its width. If the length is decreased by 12 m and the width is increased by 10 m, the area decreases by 24 m^2 . Find the original length and width of the field respectively.
 - (1) 18m, 7 m
 - (2) 9 m, 5 m
 - (3)7 m, 5 m
 - (4)12 m, 5 m

7. Find the area of the following polygon, if AL = 10 cm, AM = 20 cm, AN = 50 cm, AO = 60 cm and AD = 90 cm.



8. In the given figure (not drawn to scale), ABCD is a parallelogram and GBEF is a rectangle. Find x and y respectively



(1) 30° , 27° (2) 30° , 33° (3) 33° , 30° (4) 30° , 21° Factorise: $4x^{2} + 12xy + 9y^{2} - 8x - 12y$

(1) (2x - 3y) (2x - 3y - 4)

9.

- (1) (2x + 3y)(2x + 3y 4)(2) (2x + 3y)(2x + 3y - 4)
- (2) (2x + 3y) (2x + 3y 1)(3) (2x 3y) (2x + 3y 2)
- (4) (2x + 3y) (3x + 2y 4)
- (4) (2x + 3y) (3x + 2y 4)
- 10. If the number 1436p51q is exactly divisible by 3 and 5, then the maximum value of p + q is
 - (1) 12 (2) 13 (3) 14 (4) 15
- **11.** Sam has 3 identical squares. He places one square on top of 2 squares as shown in the figure. What is the area of the overlap?



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CLASS – VIII IMO STAG



18.	The average of marks	s of 28 students in	
	Mathematics was 50; 8 students left the school		
	and then the average incr	eased by 5. What is the	
	average of marks obtained	ed by the students who	
	left the school?		
	(1) 37.5marks	(2) 42.5marks	
	(3) 45marks	(4) 50.5 marks	
19.	Find the value of $36x^2$	$+ 25y^2 - 60xy$ when	
	$\mathbf{x} = \frac{3}{2}, \mathbf{y} = \frac{2}{5}.$		
	(1) 72 (2) 64	(3) 36 (4) 49	
20.	If		
	$\left(\frac{4}{15}\right)^3 \times \left(\frac{4}{15}\right)^{-6} = \left(\frac{4}{15}\right)^{2x+1}$		
	then find the value of x^2 +	-2x + 1.	
	(1) -4 (2) 1	(3) -1 (4) 0	
21.	If $p = (-1)^{105}$ and $q = (-1)^{105}$	$(-1)^{102}$, then p + q is	
	$(1) (-1)^{407}$	$(2) (-1)^4$	
	(3) 0	(4) None of these	
22.	The value of		
_	The value of $\begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$		
		$-2 \begin{bmatrix} x+3 \end{bmatrix}$	
	$\begin{bmatrix} 1 + \frac{1}{1} \end{bmatrix}$ is		
	[x+4]		
	$(1)\frac{x+5}{2}$ $(2)\frac{x+1}{2}$	$(3) 1 + \frac{1}{(4)} (4) \frac{1}{(4)}$	
	(-) x+1 (-) x+5	x+5 x+5	
23.	Find the value of		
	(5+ J11+ J10+ J20+ J40)	(. [4+. [44+. [10000]])	
	(V3+V11+V19+V29+V49)	(V++ V+++ V10000).	
	(1) 15 (2)14	(3) 7 (4) 12	
24	A star is 81×10^{14} km	away from the earth	
	Suppose light travels at	the speed of 3.0×10^5	
	km per second. How long	g will it take light from	
	star to reach the earth?	, C	
	(1) 7.5 \times 10 ³ hrs	(2) 2.7×10^9 secs	
	(3) 2.7×10^{19} secs	(4) 2.7×10^{11} secs	
25	Find the greatest number	that will divide 43 91	
<u> </u>	and 183 so as to leave	the same remainder in	

each case. (1)4(4) 13(2)7(3)9

Let E = 3, B = 7 and A = 4. Find the other digits

in the sum given below out of the given options.

$$B A S E$$
+
$$B A L L$$

$$G A M E S$$

(1) G = 1, S = 3, L = 0, M = 8(2) G = 1, S = 0, L = 3, M = 8(3) G = 2, S = 3, L = 0, M = 8(4) G = 0, S = 3, L = 0, M = 8

CLASS24

CLASS - VIII IMO STAGE - II

TEST - 1

The greatest five digit number exactly divisible 27. by 9 and 13 is

(1) 99945(2) 99918 (3) 99964 (4) 99972

(4) $\frac{a^2}{b^2}$

28. The least number to be subtracted from 16805 to make it a perfect square, is

Find the value of $\sqrt[3]{6075} \times \sqrt[3]{88935} \times \sqrt[3]{9625}$. 29. (1) 17355 (2) 17255 (3) 17315 (4) 17325

Find the value of $\left[\left[\frac{a}{b}\right]^{\sqrt{97}-\sqrt{95}}\right]^{\sqrt{97}+\sqrt{95}}$ 30. (1) $\frac{b^2}{a^2}$ (2) $\sqrt{\frac{b}{a}}$ (3) $\sqrt{\frac{a}{b}}$

- A shopkeeper sold shirts at ₹252 each after 31. giving 10% discount on labelled price. If he had not given the discount, he would have earned a profit of 25% on the cost price. What was the cost price of each shirt?
 - (1) ₹ 224 (2) ₹ 250
 - (3) ₹ 270 (4) None of these
- If $x = 3 + \sqrt{8}$, then find the value of $x^4 + \frac{1}{x^4}$ 32.

(3)980(2) 1154 (1) 1050(4) 1224

DIRECTION (33 – 34) : The given pie chart shows the percentage of different coloured pens in a box. Study the pie chart carefully and answer the following questions.





33. How many more black pens were there in the box than the blue pens?

(1) 240	(2) 280
(3) 480	(4) 200

34. Find the ratio of total number of green and red pens together to the total number of pens.

(1) 3 : 20	(2) 8 : 25
(3) 25 : 8	(4) 20 : 3

35. The sum of the digits of a two digit number is 12. If the new number formed by reversing the digits is greater than the original number by 36, then find the original number.

36. In an examination, A got 10 % marks less than B. B got 25 % marks more than C. C got 20 % marks less than D. If A got 720 marks out of 1000, then the percentage of marks obtained by D was

(1) 70 %	(2) 75 %
(3) 80%	(4) 85%

37. A test consists of questions each carrying 2 marks, 3 marks and 4 marks in the ratio 3:2:2respectively. If the maximum marks in the exam is 200, then find the number of questions of each type respectively.

(1) 10, 15, 10	(2) 30, 10, 20
(3) 30, 20, 20	(4) 20, 10, 5

38. Which of the following statements is incorrect?

P: The difference between maximum and minimum value of the observation in a data is called range.

Q : The number of times a particular entry occurs in a set of data is called its frequency.

- (1) Only P (2) Only Q
- (3) Both P and Q (4) Neither P nor Q
- 39. The difference between simple interest and compound interest on a certain sum of money at the end of 2 years is Rs. 117 at 15% per annum, the interest being credited annually. The principal is (2) Rs. 5980
 - (1) Rs.5200 (3) Rs. 6760
 - (4) None these
- 40. Three different containers contains different quantities of mixtures of petrol, whose measurements are 407 L, 259 L and 629 L. What biggest measure must be there to measure all the different quantities exactly?
 - (1) 11 L (2) 37 L (3) 41 L (4) 33 L
- 41. In the given figure (not drawn to scale), PORS is a parallelogram. QUT and RST are straight lines. Find the sum of x and y.



CLASS24

CLASS – VIII_IMO STAGE – II

TEST - 1

42. The perimeters of a circular field and a square field are equal. If the area of the square field is 48400 m^2 , then the area of the circular field will be _____.

(1) $4090m^2$	(2) $3850m^2$
2	

- (3) 3125 m^2 (4) None of these
- **43.** The smallest fraction which should be subtracted from the sum of $2\frac{1}{4}$, $3\frac{1}{2}$, $5\frac{3}{4}$ and $3\frac{2}{3}$ to make the result greatest one digit number, is

 $(1)\frac{3}{4}$ $(2)\frac{1}{6}$ $(3)\frac{1}{12}$ $(4)6\frac{1}{6}$

44. Which of the following is smallest?

- (1) $\sqrt{9} \sqrt{7}$ (2) $\sqrt{15} \sqrt{13}$ (3) $\sqrt{13} - \sqrt{11}$ (4) $\sqrt{17} - \sqrt{15}$
- 45. Find the cube root of $P(P^2 + 3P + 3) + 1$, if P = 999.
 - (1) 1000 (2) 999
 - (3) 1002 (4) 998

ACHIEVERS SECTION

- 46. A man loses $12\frac{1}{2}$ % of his money and after spending 70% of remainder, is left with Rs. 210 He initially had:
 - (1) Rs. 800 (2) Rs. 600
 - (3) Rs. 840 (4) Rs. 900
- **47.** The ratio between the exterior angle and the interior angle of a regular polygon is 2 : 7. Find the number of sides of a polygon.

(4) 12

(1) 6			(2) 9
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(3) 5

48. If the cost price of 3 pens is equal to the selling price of 2 pens, the gain percent is :

(1) 25% (2)
$$33\frac{1}{3}\%$$
 (3) 50% (4) $66\frac{2}{3}\%$

49. The given graph shows the number of books sold by Nitin in a week. Study the graph carefully and answer the following questions.



(i) Find the ratio of number of books sold on Tuesday to the total number of books sold during the week

(ii) On which day Nitin sold the maximum number of books?

(i)		(ii)
(1) 7 : 20	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Monday
(2) 8:55		Tuesday
(3) 9:56		Friday
(4) 9:32		Saturday

50. A family consumes 200 kg of rice in 80 days. For how many days will 120 kg of rice last ?
(1) 48
(2) 96
(3) 120
(4) 2