Ramanujan Olympiad

by AATMDEEP VIDYALAYA

Affiliated to CBSE, INDIA

Time	**: 2 Hours.**
Maximum Marks	**: 120**
Total Number of Questions	**: 40**

CLASS-VI

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

GENERAL INSTRUCTIONS

1. The question paper consists of **40 Objective Questions**, for each question you will be **awarded 3 marks** if you have darkened only the bubble corresponding to the correct answer and **zero mark** if no bubble is darkened. In case of bubbling of incorrect answer, **minus one (–1) mark** will be awarded.
2. It is mandatory to fill all the required informations on the **OMR Sheet.**
3. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form are not allowed.
4. All rough work should be done only in the extra blank papers provided by the invigilator with the question paper.
5. Use Black or Blue Ball Pen to fill the bubbles on **OMR Sheet**.

NAME OF THE CANDIDATE

ROLL NUMBER

Sign. of Student : _____ **Sign. of Invigilator : _____**

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1. Which of the following is the greatest number with 7 at the hundreds place?
(A) 1798 (B) 9817 (C) 9781 (D) 7981

2. Which of the following number will make the set of natural numbers to the set of whole numbers ?
(A) 1 (B) 0 (C) 100 (D) None of these

3. Study the pattern $1\times9+0=9, 12\times9+1=89$. What will be the next step?
(A) $123\times9+2=789$ (B) $121\times9+2=897$ (C) $24\times9+2=1089$ (D) None of these

4. Deepika has a picture that she wants to frame. The cost is ₹ 17 plus an amount that depends on the length of framing needed. The man in the shop says it will cost ₹ 17, plus ₹ 5 on each per cm. If the length of frame is 15 cm. then which expression express the cost of frame?
(A) $17+(5\times15)$ (B) $17\times5+15$ (C) $(17+5)\times15$ (D) $17+5+15$

5. Which one of the following statements is correct?
(A) Successor of a number can be obtained by subtracting 1.
(B) The difference between successor and predecessor of a number is the smallest composite number.
(C) The difference between smallest natural number and smallest whole number is 1.
(D) All of the above

6. What is the maximum and minimum number of digits in the sum of any two six digit numbers?
(A) 7,6 (B) 5,5 (C) 6, 5 (D) 7,7

7. If a is the factor of b and c is the multiple of b, then which of the following is true?
(A) a divides c (B) c divides b (C) $a\times b=c$ (D) $b\div a=c$

8. Pick the odd one out.
(A) 15, 225 (B) 11,121 (C) 17, 289 (D) 23, 161

9. Which number is a factor of 20 but not a multiple of 2?
(A) 12 (B) 5 (C) 4 (D) 10

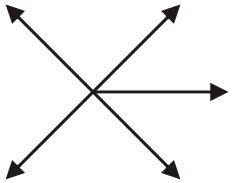
10. What least value should be given to $*$ so that the number $234*65$ is divisible by 11?
(A) 5 (B) 4 (C) 11 (D) None of these

11. **Assertion (A) :** LCM of 23 and 29 is 1.
Reason (R) : LCM of two coprime number is their product.
(A) A is true and R is the correct explanation of A
(B) A is false and R is the correct explanation of A
(C) A is true and R is false
(D) A is false and R is true

12. State 'T' for true and 'F' for false.
I. A number is said to be prime, if it has more than 2 factors.
II. If a divides b and a divides c, then a divides product of b and c.
III. Product of two numbers = Product of their HCF and prime factors.
IV. Two number are said to be coprime, if their LCM is 1.

	I	II	III	IV
(A)	T	F	F	F
(B)	T	F	T	T
(C)	F	F	T	F
(D)	F	T	F	F

13. Number of angles formed in the given figure is:



(A) 2 (B) 3 (C) 4 (D) 5

14. Which expression has closest value to 0?
(A) 26 –24 (B) 24 –(–29) (C) –30 +31 (D) –2 –6

15. In 2010, Ganesh fund lost ₹ 9000. In 2011, he lost another ₹ 10000 and in 2012, he lost ₹ 17000. In 2013, he gained ₹ 16000 and in 2014, he gained ₹ 12000. How much does he have at the end?
(A) Loss of ₹ 2000 (B) Gain of ₹ 5000 (C) Loss of ₹ 8000 (D) Gain of ₹ 10000

16. Ramu is now 24p yr old. He is thrice as old as Shyamu. What was their total age 4 yr ago?
(A) $30p-4$ (B) $32p-8$ (C) $30p+4$ (D) $24p-8$

17. Find the smallest possible value of the number 368 ☒▢☒ , so that it is divisible by 3,4 and 25.
(A) ☒ = 0 ▢ =0 ☒ =0 (B) ☒ = 1 ▢ = 1 ☒ =0 (C) ☒ = 0 ▢ =0 ☒ =4 (D) ☒ = 1 ▢ =0 ☒ =0

18. If $4x$ means $1\times2\times3\times4,$ then $4x=24$ and if $5x$ means $1\times2\times3\times4\times5,$ then $5x=120,$ find the value of $6x.$
(A) 720 (B) 240 (C) 360 (D) 120

19. If $u\nabla v=\frac{10}{u}-\frac{12}{v}$, then $3\nabla7$ is equal to:

(A) $\frac{10}{7}$ (B) $\frac{12}{3}$ (C) $\frac{34}{21}$ (D) $\frac{21}{8}$

20. If $1\times1=1$
$11\times11=121$
$111\times111=12321$
$1111\times1111=1234321$
Then, $11111\times11111=?$
(A) 12344321 (B) 1234521 (C) 12342521 (D) 123454321

21. Find the angle measure between the hand of the clock in the following figure.
(A) 60°
(B) 120°
(C) 90°
(D) 150°

22. If $a*b=3a+2b-1,$ then what is the value of $10*12?$
(A) 54 (B) 53 (C) 52 (D) None of these

23. $1+3=4=2^2$

$1+3+5=9=3^2$

$1+3+5+7=16=4^2$

$1+3+5+7+9=25=5^2$

Evaluate:

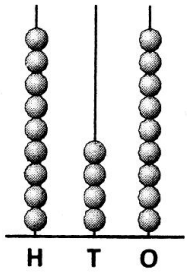
$1+3+5+7+9+11+13+17+19+23$

(A) 6^4 (B) 9^2 (C) 10^2 (D) None of these

24. In numbers from 1 to 100, how many times does the digit 0 appear?

(A) 9 (B) 10 (C) 11 (D) 12

25. How many beads, should be removed from the hundreds place in the abacus shown if it has to represent a number between 550 and 650?



(A) 4 (B) 3 (C) 2 (D) 1

26. How many millions are there in 10 crores?

(A) 1000 (B) 10 (C) 1 (D) 100

27. What is the number of matchsticks that can be used to write 39 in Roman System?

(A) 8 (B) 9 (C) 3 (D) 6

28. What is the average of three consecutive numbers after 5009?

(A) 5010 (B) 5009 (C) 5011 (D) 5012

29. Which of the following symbols in order must be introduced in the blanks to make the given sentence true?

43 _____ 1 = 47 _____ 3

(A) $+, \times$ (B) $-, +$ (C) $\times, +$ (D) $+, -$

30. Which number should come next in the series given?

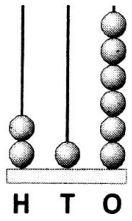
7, 10, 15, 22, 31, ?

(A) 55 (B) 42 (C) 41 (D) 87

31. A is the 5th prime number, B is the 7th prime number. What is B – A ?

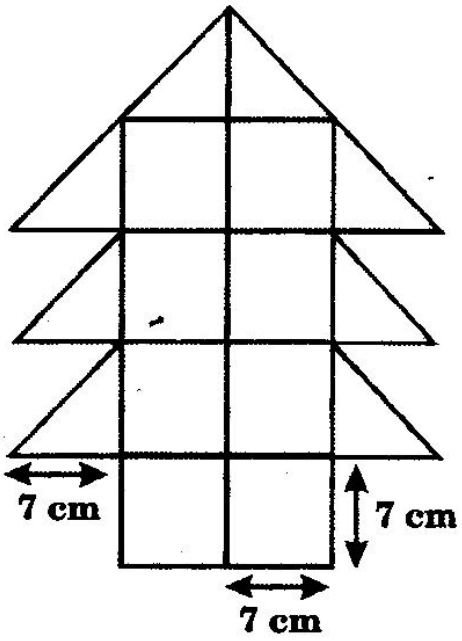
(A) 6 (B) 8 (C) 12 (D) 2

32. Which of the following is a factor of the number shown on the spike abacus?



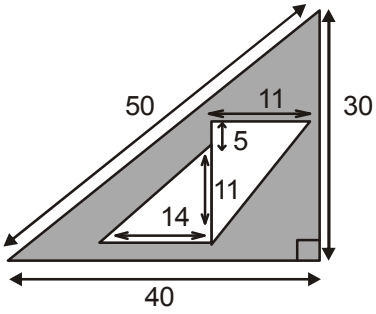
(A) 10 (B) 7 (C) 5 (D) 8

33. The area of the following figure is.....cm^2.



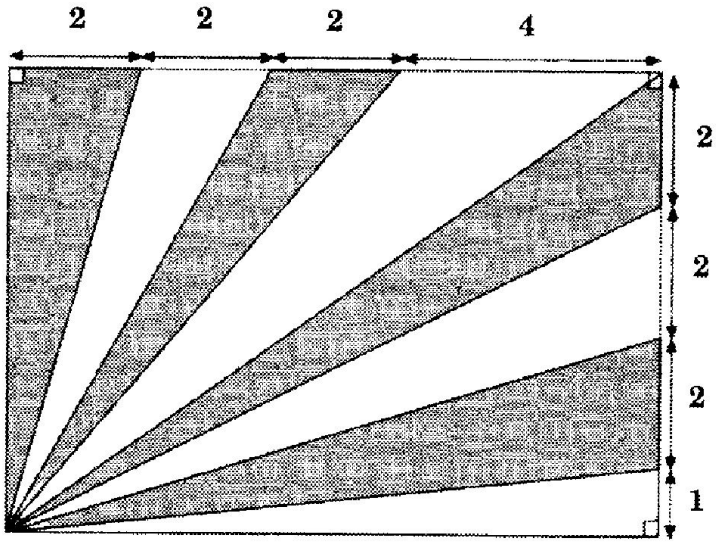
(A) 588 (B) 885 (C) 444 (D) 888

34. What is the area of the shaded part? (The dimension are given in cm.)



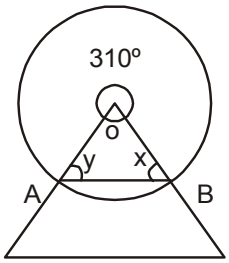
(A) 435 cm^2 (B) 870 cm^2 (C) 545 cm^2 (D) 290 cm^2

35. Find the area of the shaded part in the figure below. (The dimensions are given in cm.) **Class-VI**



(A) 34 cm^2 (B) 43 cm^2 (C) 36 cm^2 (D) 42 cm^2

36. In the given figure, O is the centre of two concentric circles. If reflex $\angle AOB = 310°$, find the values of x, y.



(A) 65°,65° (B) 60°,60° (C) 75°,75° (D) None of these

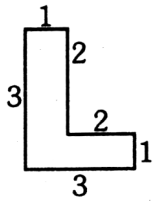
37. The sum of three consecutive odd numbers is always divisible by:
(A) 2 (B) 3 (C) 5 (D) 6

38. If $A = 10W^3 + 20W^2 - 55W + 60$, $B = -25W^2 + 15W - 10$ and $C = 5W^2 - 10W + 20$ then $A + B - C$ is equal to:

(A) $10W^3 + 10W^2 + 30W + 30$ (B) $10W^3 + 10W^2 - 30W - 30$

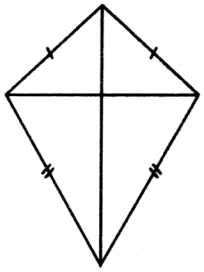
(C) $10W^3 - 10W^2 - 30W + 30$ (D) None of these

39. The area of the given figure in (sq. units) is



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

40. How many lines of symmetry does the figures have?



(A) 1 (B) 2 (C) 3 (D) 4

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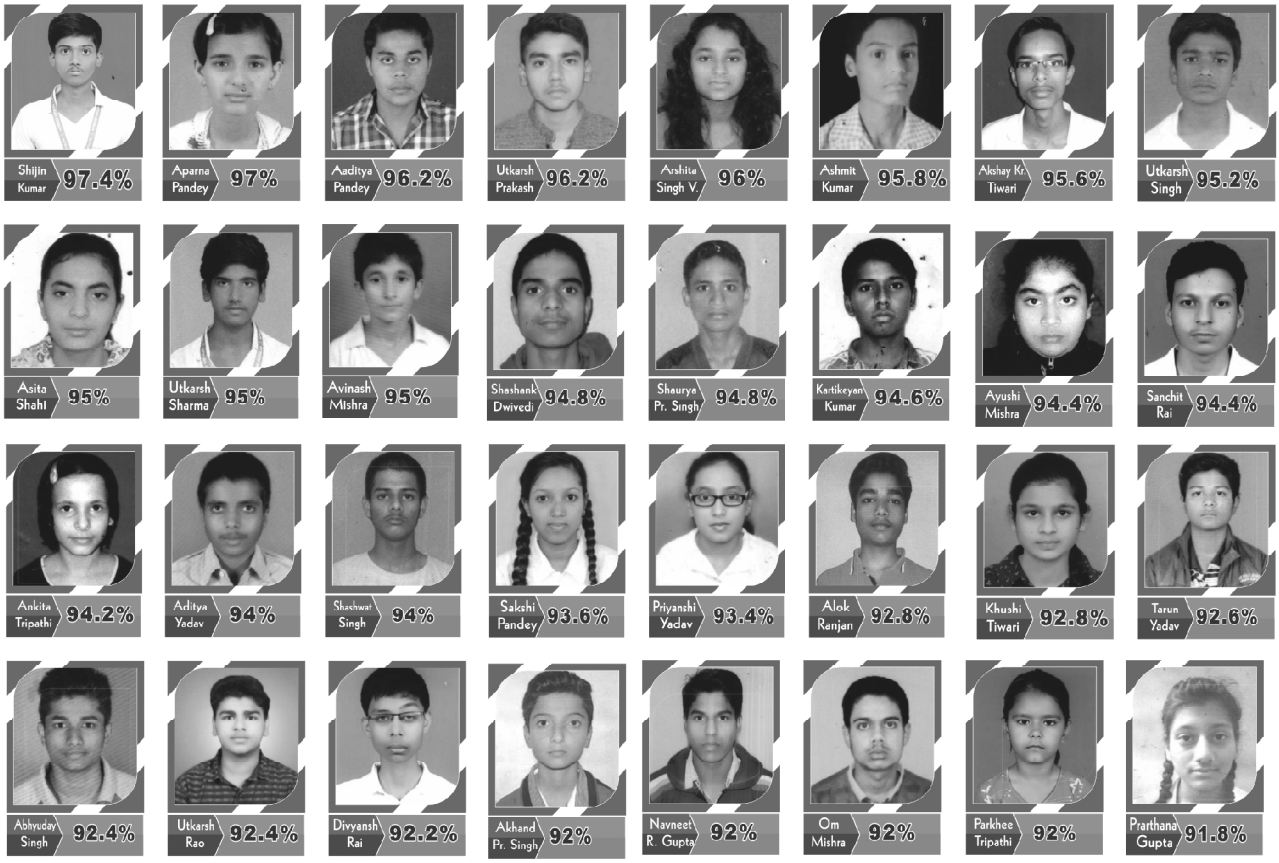
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