

**CREST Mental Maths Olympiad (CMMO)****Sample Paper****Pattern and Marking Scheme**

<b>Grade</b>	<b>Topic/Section</b>	<b>No. of Questions</b>	<b>Marks per Question</b>	<b>Total Marks</b>
<b>Grade 4</b>	Basique	60	3	180
	Avance	20	6	120
<b>Grand Total</b>		<b>80</b>		<b>300</b>

The total duration of the exam is 60 minutes.

**Note:** For every incorrect answer, there's a penalty of  $\frac{1}{3}$  rd of the total marks allotted to that question.

**Syllabus****Number and Number Names**

- Representation in expanded form (numbers less than 1000)
- Number names (numbers less than 1000)
- Representation in hundreds, tens and ones (numbers less than 1000)
- Pictorial representation using cubes (numbers up to 1000)
- Arranging the given numbers in ascending and descending order (numbers up to 1000)
- Identify and usage of signs  $>$ ,  $<$  and  $=$  (numbers up to 1000)
- Abacus representation (numbers up to 1000)
- Step counting of numbers starting from any number (numbers up to 1000)
- Use of place value (numbers less than 1000)
- Play with patterns
- Games with numbers

**Addition and Subtraction**

- Three digit subtraction (Problems on pictorial representation, missing numbers & borrowing on numbers less than 1000)
- Three digit addition (Problems on pictorial representation, missing numbers, carry over & commutative property of addition on numbers less than 1000)
- Solve problems on number bonds (numbers less than 1000)

## Multiplication and Division

- a. Use of multiplication tables to solve mathematical statements on multiplication and division (Tables from 2 to 20)
- b. Understanding division using grouping and pictorial representation
- c. Understanding of words doubles, half, thrice, three times, dozen, pair, score, century etc. to solve multiplication and division problems
- d. Use of number bonds to solve problems of multiplication and division
- e. Understanding and identifying factors and multiples of given numbers

## Fractions

- a. Understanding fractions using pictorial representations (one-third, two-thirds, one-eighth, two-fifth etc.)
- b. Arrange given fractions in ascending or descending order
- c. Identification and usage of signs  $>$ ,  $<$  and  $=$  for given fractions
- d. Like Fractions Addition with same denominator
- e. Like Fractions Subtraction with same denominator

## Measurement

- a. Conversion of Unit of Measurement - (Length, Weight, Capacity, Time)
- b. Money
- c. Reading measurement in pictorial problems: Using a ruler, weighing balance, graduated container and clock

## Geometry

- a. Identification of acute, obtuse, right and straight angles
- b. Identify and count the number of a particular 2-D shape in a figure (circle, triangle, rectangle and square, etc.)
- c. Identify 3-D shapes (cuboid, cube, cone, sphere, cylinder, etc.)
- d. Pattern recognition in a shapes series and identifying the next shape in the series

For more details, visit <https://www.crestolympiads.com/mental-maths-mmo>

## Basique (Each Question is 3 Marks)

1. Which of the following represents the correct expanded form for the number 406?

a. **600 + 4**

b. **400 + 6**

c. **400 + 60**

d. **600 + 40**

2. Which of the following numbers is the smallest?

a. **Five hundred five**

b. **Five hundred fifteen**

c. **Five hundred fifty**

d. **Five hundred fifty five**

3. Fill in the blank:

**2 hundreds, 16 tens, 28 ones**

a. **268**

b. **278**

c. **290**

d. **388**

4. Which of the following represents the correct descending order of numbers?

a. **626 > 645 > 538 > 557**

b. **645 > 626 > 557 > 538**

c. **626 < 645 < 538 < 557**

d. **645 < 626 < 557 < 538**

5. Fill in the blank:

**3 hundreds 24 ones \_\_\_\_\_ 32 tens**

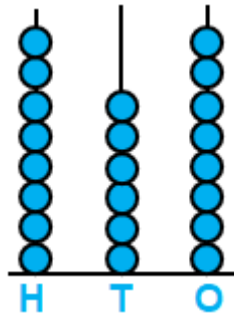
a. **>**

b. **<**

c. **=**

d. **Both B and C**

6. What is 100 more than the number shown on the abacus?



a. **768**

b. **868**

c. **878**

d. **968**

7. Fill in the blank:

**122, 172, 222, \_\_\_\_\_**

a. **252**

b. **262**

c. **272**

d. **282**

8. What is the sum of the place values of 0 in the numbers 640 and 108?

a. **0**

b. **10**

c. **100**

d. **101**

9. Fill in the blank:

**2, 4, 8, 16, 32, \_\_\_\_\_**

a. **48**

b. **64**

c. **72**

d. **78**

10. Fill in the blank:

**Z0, Y3, X8, W15, \_\_\_\_\_**

a. **V24**

b. **U24**

c. **V26**

d. **U26**

11. What is the greatest three-digit number that can be formed using the digits 1, 7, and 9 without repeating the digits?

a. **179**

b. **719**

c. **917**

d. **971**

12. Which of the following number statements shows subtraction of 342 from 671?

a. **342 - 671**

b. **671 - 342**

c. **671 + 342**

d. **342 + 671**

13. What is the sum of 312, 439, and 157?

a. **798**

b. **808**

c. **868**

d. **908**

14. What is the result when 100 is subtracted from 359?

a. **159**

b. **259**

c. **369**

d. **459**

15. Fill in the blank:

$$742 - 219 = 412 + \underline{\quad}$$

a. 104

b. 111

c. 128

d. 147

16. Find the value of X + Y:

$$\begin{array}{r} 6X9 \\ - 45Y \\ \hline 155 \end{array}$$

a. 1

b. 3

c. 4

d. 6

17. What is X - Y?

$$\begin{array}{r} 23X \\ + 1Y7 \\ \hline 376 \end{array}$$

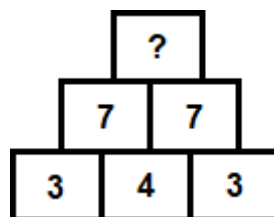
a. 6

b. 8

c. 9

d. 11

18. What will come in place of the question mark (?) in the number bond?



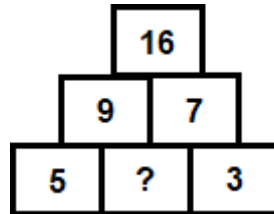
a. **0**

b. **14**

c. **49**

d. **64**

19. What will come in place of the question mark (?) in the number bond?



a. **2**

b. **3**

c. **4**

d. **5**

20. Fill in the blank:

$$72 \div 12 = \underline{\hspace{2cm}}$$

a. **6**

b. **7**

c. **8**

d. **9**

21. Fill in the blank:

$$363 = \underline{\hspace{2cm}} \times 7 + 6$$

a. **45**

b. **51**

c. **57**

d. **59**

22. How many groups of 7 locks are there?



a. **2**

b. **3**

c. **4**

d. **5**

23. Six times a number is 48. What is the number?

a. **5**

b. **6**

c. **7**

d. **8**

24. How much greater is double of 6 than double of 4?

a. **2**

b. **4**

c. **8**

d. **16**

25. Fill in the blank:

$$\begin{array}{r} 69 \\ 4 \_ 4 \\ - 36 \\ \hline 54 \\ - 54 \\ \hline 0 \end{array}$$

a. **1**

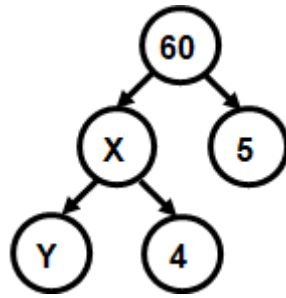
b. **2**

c. **3**

d. **4**



26. What will come in place of X?



a. **5, 2**

b. **6, 3**

c. **9, 2**

d. **12, 3**

27. What is the HCF of 18 and 24?

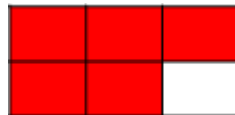
a. **2**

b. **3**

c. **6**

d. **9**

28. What fraction of the figure is shaded?



a.  **$\frac{1}{6}$**

b.  **$\frac{1}{3}$**

c.  **$\frac{5}{6}$**

d.  **$\frac{1}{4}$**

29. What is the mixed fraction shown in the figure?



a.  $\frac{1}{4}$

b.  $\frac{3}{4}$

c.  $3\frac{3}{4}$

d.  $3\frac{1}{4}$

30. Which of the following fractions is correctly arranged in ascending order?

a.  $\frac{11}{17}, \frac{11}{19}, \frac{11}{21}, \frac{11}{23}$

b.  $\frac{11}{17}, \frac{11}{21}, \frac{11}{19}, \frac{11}{23}$

c.  $\frac{11}{17}, \frac{11}{21}, \frac{11}{23}, \frac{11}{19}$

d.  $\frac{11}{23}, \frac{11}{21}, \frac{11}{19}, \frac{11}{17}$

31. Which of the following statements is correct?

a.  $\frac{7}{33} > \frac{7}{29}$

b.  $\frac{7}{17} > \frac{7}{11}$

c.  $\frac{7}{19} > \frac{7}{23}$

d.  $\frac{7}{45} > \frac{7}{23}$

32. Fill in the blank:

$$\frac{7}{13} + \frac{4}{13} - \frac{5}{13} = \underline{\hspace{2cm}}$$

a.  $\frac{5}{13}$

b.  $\frac{6}{13}$

c.  $\frac{9}{13}$

d.  $\frac{11}{13}$

33. Bella ate three-eighth of a cake. What fraction of cake is left?

a.  $\frac{1}{4}$

b.  $\frac{1}{8}$

c.  $\frac{5}{8}$

d.  $\frac{7}{8}$

34. Fill in the blank:

$$16 \text{ km } 56 \text{ m} = \underline{\hspace{2cm}} \text{ m}$$

a. 72

b. 1656

c. 16056

d. 16560

35. Fill in the blank:

$$3408 \text{ cm} = \underline{\hspace{2cm}} \text{ m } \underline{\hspace{2cm}} \text{ cm}$$

a. 3, 408

b. 34, 8

c. 340, 8

d. 340, 80

36. How many millimeters make 100 cm?

a. **10 mm**

b. **100 mm**

c. **1000 mm**

d. **10000 mm**

37. Convert 10 kg 305 g into g.

a. **10305 g**

b. **10350 g**

c. **10530 g**

d. **13050 g**

38. How many grams make 45 kg?

a. **450 g**

b. **4500 g**

c. **45000 g**

d. **450000 g**

39. How many millilitres make 102 litres?

a. **1020 ml**

b. **10200 ml**

c. **102000 ml**

d. **1020000 ml**

40. Convert 20 l 350 ml into ml.

a. **2305 ml**

b. **23035 ml**

c. **20305 ml**

d. **20350 ml**

41. The height of a box is 45 cm 7mm. If another box of height 32 cm 5 mm is stacked above it, what is the total height?

- a. **76 cm 8 mm**                      b. **77 cm 8 mm**  
c. **77 cm 2 mm**                      d. **78 cm 2 mm**

42. A cake of weight 5 kg 375 g was bought. 3 kg 475 g of the cake was distributed among children. How much cake was left?

- a. **1 kg 600 g**                      b. **1 kg 900 g**  
c. **2 kg 600 g**                      d. **2 kg 900 g**

43. For a party, 2 l 500 ml of apple juice and 4 l 750 ml of orange juice were used. What is the total amount of juice consumed at the party?

- a. **7 l 250 ml**                      b. **7 l 750 ml**  
c. **8 l 350 ml**                      d. **8 l 500 ml**

44. Which of the following represents the correct descending order of numbers?

$$3 \text{ hrs } 40 \text{ min} = \underline{\quad\quad} \text{ min}$$

- a. **220**                                      b. **235**  
c. **250**                                      d. **260**

45. The summer holidays are for 49 days. How many weeks is it summer holidays?

- a. **5 Weeks**                              b. **6 Weeks**  
c. **7 Weeks**                              d. **8 Weeks**

46. The cost of a toy car and a teddy bear is \$7.45 and \$18.20. How much money will have to be paid to buy the two toys?

a. **\$24.55**

b. **\$25.65**

c. **\$25.85**

d. **\$26.25**

47. Jimmy has \$23.50 in his wallet. He spends \$9.70 in the school canteen. How much money is left with him?

a. **\$12.60**

b. **\$12.80**

c. **\$13.80**

d. **\$14.20**

48. What time will it be 2 hours 20 minutes from the time shown on the clock?



a. **11:40**

b. **12:00**

c. **11:00**

d. **11:20**

49. What is the actual time if the given clock is running 15 minutes fast?



a. **2:05**

b. **2:15**

c. **2:30**

d. **2:35**

50. Tim started his homework at 7:05 pm and finished it by 8:15 pm. How much time did it take him to finish his homework?

- a. **40 minutes**                      b. **1 hr 5 minutes**  
c. **1 hr 10 minutes**              d. **1 hr 15 minutes**

51. Bob went to sleep at 10:20 pm and slept for 9 hrs 30 min. At what time did he wake up?

- a. **6:50 am**                              b. **7:20 am**  
c. **7:50 am**                              d. **7:20 pm**

52. Which of the following is true based on the lengths of the candles?



- a.  **$M > R$**                               b.  **$R < S$**   
c.  **$M = S$**                               d.  **$M > S$**

53. Which of the following correctly shows increasing order of the capacity of the given containers?



- a.  **$P < Q < R$**                               b.  **$Q < P < R$**   
c.  **$P > Q > R$**                               d.  **$P < R < Q$**

54. Which of the following is a right angle?

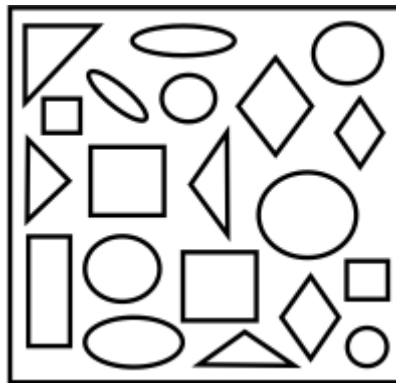


55. What type of angle is shown in the picture?



- a. Acute angle
- b. Right angle
- c. Obtuse angle
- d. Straight angle

56. How many triangles are there in the figure?



- a. 1
- b. 2
- c. 3
- d. 4



57. "I have six faces.  
All my faces are squares.  
Who am I?"

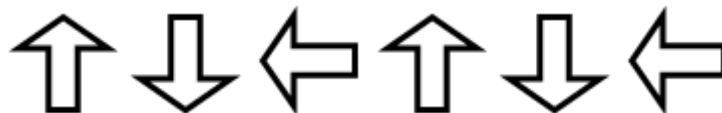
- a. Cube
- b. Cuboid
- c. Cone
- d. Cylinder


58. Which 3D shape does the given object resemble?



- a. Sphere
- b. Cone
- c. Cuboid
- d. Cylinder

59. What will be the next shape in the pattern?



- a. 
- b. 
- c. 
- d. 

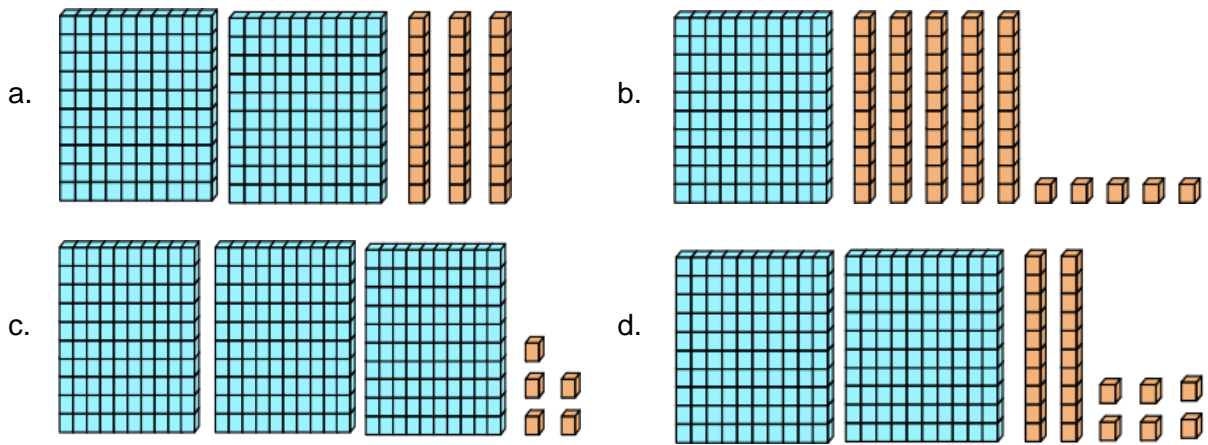
60. What will come in place of question mark in the given pattern?



- a. 
- b. 
- c. 
- d. 

## Avance (Each Question is 6 Marks)

61. Which of the following numbers is the greatest?



62. Fill in the blank:

**764, \_\_\_\_\_, \_\_\_\_\_, 731, 720**

a. **753, 736**

b. **753, 742**

c. **750, 742**

d. **749, 750**

63. Fill in the blank:

**1, 8, 27, 64, \_\_\_\_\_**

a. **88**

b. **94**

c. **125**

d. **142**

64. Who am I?

- (a) My hundreds place digit is twice my ones place digit.
- (b) My ones place digit is the smallest prime number.
- (c) My tens place digit is 4 more than my ones place digit.

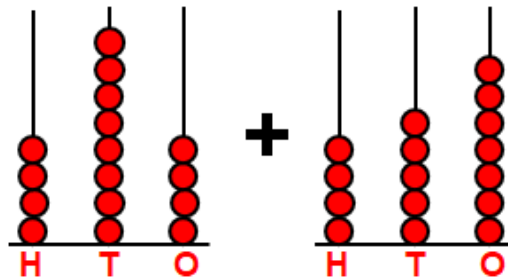
a. **246**

b. **264**

c. **462**

d. **642**

65. What is the sum of the given numbers in the abacuses?



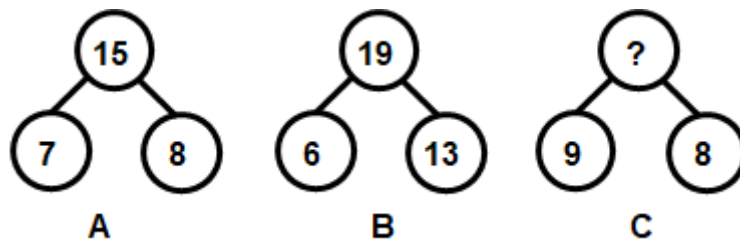
a. **831**

b. **841**

c. **879**

d. **941**

66. Based on number bonds A and B, find the missing number in number bond C?



a. **14**

b. **17**

c. **21**

d. **24**

67. 24 candles are packed into boxes containing 8 candles each. How many boxes were there?

a. **2**

b. **3**

c. **4**

d. **5**

68. A fruit seller packed 238 pineapples equally in 17 boxes. How many pineapples were there in each box?

a. **14**

b. **16**

c. **18**

d. **21**

69. What is the LCM of 12, 18 and 24?

a. **24**

b. **72**

c. **144**

d. **216**

70. Which of the following is  $2\frac{3}{4}$ ?



71. A pizza is made of 12 pieces. Sam and Linda ate 3 pieces each. What fraction of the pizza is remaining?

a.  $\frac{1}{4}$

b.  $\frac{1}{3}$

c.  $\frac{5}{12}$

d.  $\frac{1}{2}$



76. How many minutes in 240 seconds?

a. **1**

b. **2**

c. **3**

d. **4**

77. How many quarters make 3 dollars?

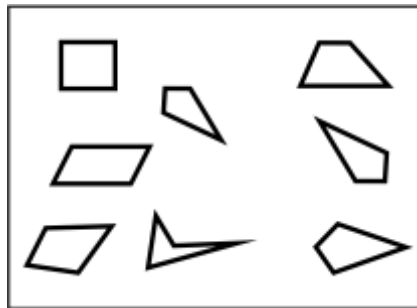
a. **4**

b. **6**

c. **8**

d. **12**

78. How many kites are there in the figure?



a. **2**

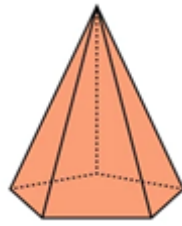
b. **3**

c. **4**

d. **5**

79. Fill in the blank:

The given figure has \_\_\_ vertices, \_\_\_ edges and \_\_\_ faces.



a. 5, 10, 5

b. 6, 8, 6

c. 6, 10, 6

d. 6, 12, 8

80. Fill in the blank:



a.  

b.  

c.  

d.  

### Answer Key

1.	b	2.	a	3.	d	4.	b	5.	c	6.	d	7.	c
8.	a	9.	b	10.	a	11.	d	12.	b	13.	d	14.	b
15.	b	16.	c	17.	a	18.	b	19.	c	20.	a	21.	b
22.	c	23.	d	24.	b	25.	a	26.	d	27.	c	28.	c
29.	d	30.	d	31.	c	32.	b	33.	c	34.	c	35.	b
36.	c	37.	a	38.	c	39.	c	40.	d	41.	d	42.	b
43.	a	44.	a	45.	c	46.	b	47.	c	48.	a	49.	a
50.	c	51.	c	52.	b	53.	a	54.	c	55.	d	56.	d
57.	a	58.	d	59.	a	60.	b	61.	c	62.	b	63.	c
64.	c	65.	d	66.	b	67.	b	68.	a	69.	b	70.	c
71.	d	72.	b	73.	b	74.	d	75.	c	76.	d	77.	d
78.	c	79.	c	80.	d								