CREST Mental Maths Olympiad (CMMO)
Sample Paper

Pattern and Marking Scheme				
Grade	Topic/Section	No. of Questions	Marks per Question	Total Marks
Grade 3	Basique	60	3	180
	Avance	20	6	120
Grand Total		80		300

The total duration of the exam is 60 minutes.

Note: For every incorrect answer, there's a penalty of 1/3rd of the total marks allotted to that question.

Syllabus

Number and Number Names

   a. Representation in expanded form (numbers less than 1000)
   b. Number names (numbers less than 1000)
   c. Representation in hundreds, tens and ones (numbers less than 1000)
   d. Pictorial representation using cubes (numbers up to 1000)
   e. Arranging the given numbers in ascending and descending order (numbers up to 1000)
   f. Identify and usage of signs >, < and = (numbers up to 1000)
   g. Abacus representation (numbers up to 1000)
   h. Step counting of numbers starting from any number (numbers up to 1000)
   i. Use of place value (numbers less than 1000)
   j. Play with patterns
   k. Games with numbers

Addition and Subtraction

   a. Three digit subtraction (Problems on pictorial representation, missing numbers & borrowing on numbers less than 1000)
   b. Three digit addition (Problems on pictorial representation, missing numbers, carry over & commutative property of addition on numbers less than 1000)
   c. 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 shows the expanded form of the number 982?

a. 90 + 80 + 2

b. 200 + 80 + 9

c. 900 + 80 + 2

d. 800 + 90 + 9

2. What is the number name for 606?

a. Six hundred six

b. Six hundred sixteen

c. Six hundred sixty

d. Six hundred sixty six

3. Fill in the blank:

764 = ___ hundreds, ___ tens, ___ ones

a. 7, 6, 14

b. 6, 6, 14

c. 6, 17, 4

d. 7, 6, 4

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

a. 729 > 715 > 632 > 425

b. 729 > 632 > 715 > 425

c. 729 < 715 < 632 < 425

d. 729 < 632 < 715 < 425

5. Fill in the blank:

120 ___ One hundreds, twenty ones

a. >

b. <

c. =

d. Both B and C

6. What is the number shown on the abacus?

H   T   O
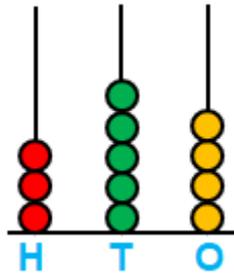
a. **345**

b. **354**

c. **353**

d. **543**

7. Fill in the blank:

22, 29, ___, 43, 50

a. **33**

b. **36**

c. **39**

d. **41**

8. What is the sum of the place values of 7 in the numbers 708, 437 and 76?

a. **77**

b. **707**

c. **770**

d. **777**

9. Fill in the blank:

1, 4, 9, ___, 25

a. **13**

b. **16**

c. **18**

d. **21**

10. Fill in the blank:

$$A2, C4, E6, \_\_\_, I10$$

a. D8

b. F7

c. G8

d. G9

11. What is the smallest three-digit number that can be formed using the digits 2,7 and 9 without repeating the digits?

a. 279

b. 297

c. 792

d. 729

12. Fill in the blank:

$$542 = 500 + \_\_\_ + 2$$

a. 30

b. 40

c. 42

d. 50

13. What is 100 more than 456?

a. 356

b. 466

c. 546

d. 556

14. How much more is 758 than 539?

a. 219

b. 319

c. 329

d. 419

15. Fill in the blank:

$$316 = 516 - \underline{\quad}$$

a. **100**

b. **110**

c. **180**

d. **200**

16. Find the value of X:

$$
\begin{array}{r}
7\,1\,X \\
-\,2\,5\,9 \\
\hline
4\,5\,1 \\
\hline
\end{array}
$$

a. **0**

b. **1**

c. **2**

d. **3**

17. What is X + Y?

$$
\begin{array}{r}
3\,X\,4 \\
+\,1\,2\,7 \\
\hline
4\,7\,Y \\
\hline
\end{array}
$$

a. **3**

b. **4**

c. **5**

d. **6**

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

279

134 + ?
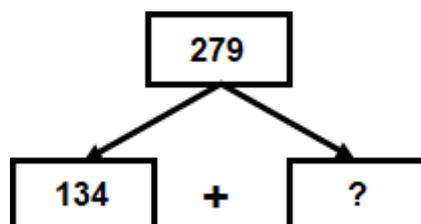
a. **135**   b. **145**

c. **189**   d. **413**

19. What will come in place of the question mark (?) in the number bond?
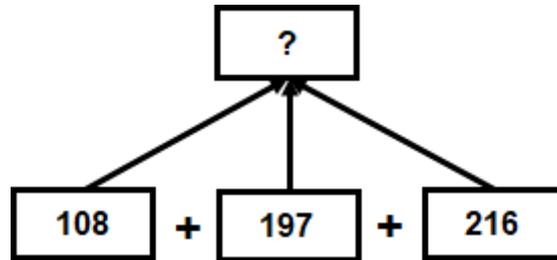
a. **439**   b. **469**

c. **521**   d. **541**

20. Fill in the blank:

$$\underline{\hspace{2cm}} \text{ x } 2 = 3 \text{ x } 8$$

a. **4**   b. **6**

c. **12**   d. **16**

21. What is the product of 19 and 17?

a. **263**   b. **285**

c. **323**   d. **372**

22. How many groups of 3 can be formed from the given flowers?

a. **2**

b. **3**

c. **4**

d. **5**

23. How much is 17 times 11?

a. **167**

b. **177**

c. **187**

d. **197**

24. If there are 36 apples, then how many dozens of apples are there?

a. **3**

b. **4**

c. **5**

d. **6**

**25.** What will come in place of the question mark (?)?

81

9	×	?

a. **5**

b. **7**

c. **8**

d. **9**

26. What will come in place of X?

91 ÷X→ 7

a. **8**

b. **11**

c. **13**

d. **14**

27. Which of the following correctly shows all the factors of 12?

a. **1, 2, 3, 4, 6, 12**

b. **1, 2, 4, 8, 12**

c. **1, 2, 3, 4, 6, 8, 12**

d. **1, 2, 3, 4, 12**

28. What fraction of the figure is shaded?

a. $\dfrac{1}{2}$

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

c. $\dfrac{2}{3}$

d. $\dfrac{1}{4}$

29. Which of the following figures is one-fifth shaded?

a.

b.

c.

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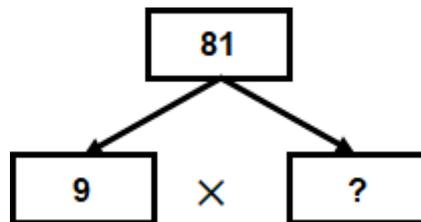
30. Which of the following fractions is correctly arranged in ascending order?

a. $\dfrac{2}{7}, \dfrac{6}{7}, \dfrac{5}{7}, \dfrac{1}{7}$

b. $\dfrac{1}{7}, \dfrac{2}{7}, \dfrac{5}{7}, \dfrac{6}{7}$

c. $\dfrac{1}{7}, \dfrac{6}{7}, \dfrac{5}{7}, \dfrac{2}{7}$

d. $\dfrac{1}{7}, \dfrac{5}{7}, \dfrac{6}{7}, \dfrac{2}{7}$

31. Which of the following statements is correct?

a. $\dfrac{2}{7} > \dfrac{5}{7}$

b. $\dfrac{3}{7} > \dfrac{8}{7}$

c. $\dfrac{3}{7} > \dfrac{1}{7}$

d. $\dfrac{1}{7} > \dfrac{5}{7}$

32. What is the resulting fraction?

a. $\dfrac{4}{5}$

b. $\dfrac{3}{5}$

c. $\dfrac{2}{5}$

d. 1

33. What is the resulting fraction?

$$\dfrac{7}{9} - \dfrac{4}{9}$$

a. $\dfrac{1}{3}$

b. $\dfrac{2}{9}$

c. $\dfrac{4}{9}$

d. $\dfrac{5}{9}$

34. How many metres make 5 km?

a. 50

b. 500

c. 5000

d. 50000

35. Fill in the blank:

24 m 56 cm = _____ cm

a. 80

b. 296

c. 2306

d. 2456

36. Convert 21 km into cm.

a. 2100 cm

b. 21000 cm

c. 210000 cm

d. 2100000 cm

37. How many grams make 12 kg?

a. 120

b. 1200

c. 12000

d. 120000

38. Fill in the blank:

$$7 \text{ kg } 20 \text{ g} = \underline{\hspace{2cm}} \text{ g}$$

a. **720**

b. **7020**

c. **7200**

d. **7220**

39. Which of the following shows 10000 ml?

a. **1 litre**

b. **10 litres**

c. **100 litres**

d. **1000 litres**

40. How many millilitres make 13 litres?

a. **30 ml**

b. **1300 ml**

c. **13000 ml**

d. **130000 ml**

41. Subtract 17 m 28 cm from 28 m 16 cm.

a. **10 m 88 cm**

b. **11 m 88 cm**

c. **11 m 92 cm**

d. **12 m 88 cm**

42. Fill in the blank:

21 m 13 cm +32 m 17 cm = _____ m ___ cm

a. **52, 70**

b. **53, 30**

c. **54, 60**

d. **55, 30**

43. Bag A and bag B weigh 25 kg 225 g and 17 kg 875 g respectively. How much more does bag A weigh than bag B?

a. **7 kg 350 g**

b. **7 kg 480 g**

c. **8 kg 350 g**

d. **8 kg 480 g**

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

2 hrs 15 min = ___ min

a. **105**

b. **135**

c. **150**

d. **165**

45. How many days are there in 5 weeks?

a. **2 days**

b. **12 days**

c. **21 days**

d. **35 days**

46. The cost of an eraser is 30 cents. How much money will be paid for buying 5 erasers?

a. **$1.20**

b. **$1.30**

c. **$1.50**

d. **$1.75**

47. The cost of a notepad is $7, and the cost of a diary is $12. Tom pays $20 at the counter to buy a notepad and a diary. How much change will he receive?

a. **$1**

b. **$2**

c. **$3**

d. **$4**

48. Sara does piano practice for an hour. If she begins her practice at the time shown on the clock, when does her practice end?

a. **6:30 pm**

b. **7:30 pm**

c. **8:00 pm**

d. **8:30 pm**

49. What is the time shown on the clock?

a. **6:10**

b. **6:50**

c. **7:10**

d. **8:10**

50. What is the elapsed time from the start time?
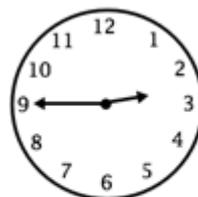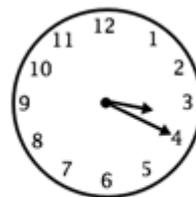
Start   Stop

a. **20 minutes**

b. **35 minutes**

c. **40 minutes**

d. **50 minutes**

51. Billy purchases a burger worth $7.50 and a packet of french fries worth $5.80. How much money will he pay to the shopkeeper?

a. **$12.80**

b. **$13.10**

c. **$13.30**

d. **$13.70**

52. Which of the following statements is correct?

a. **200 g > 1 kg**

b. **2000 g > 1 kg**

c. **2000 g = 1 kg**

d. Both b and c

**53.** Which of the following statements is correct based on the lengths of the given objects?

A

B

C   Crayon
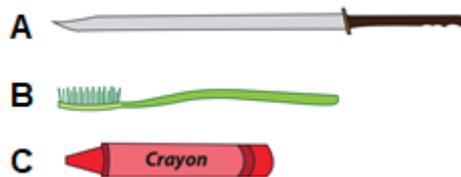
a. **A > C**

b. **B < C**

c. **A = C**

d. **A < B**

54. Which of the following is an acute angle?

a.

b.

c.

d.
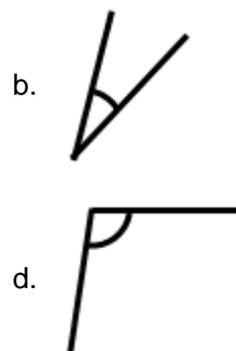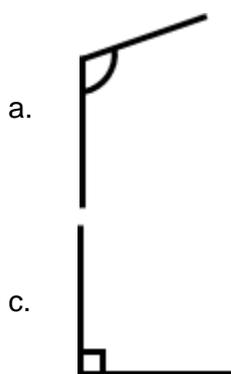
55. What type of angle is shown in the picture?
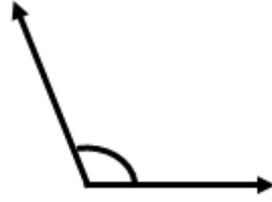
a. Acute angle   b. Right angle

c. Obtuse angle   d. Straight angle

**56.** Which of the following is called a kite?

a.

b.

c.

d.
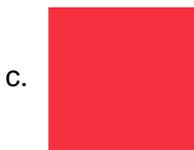
57. How many faces does a cuboid have?

a. 4   b. 6

c. 8   d. 12

58. How many vertices are there in a triangular prism?

a. 3   b. 4

c. 5   d. 6

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

$$\gg \wedge \langle\langle \rangle\rangle \wedge \langle\langle$$

a. $\gg$

b. $\wedge$

c. $\langle\langle$

d. $\vee$
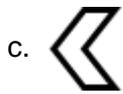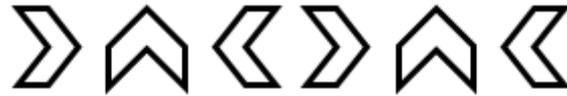
60. What will come in place of question mark in the given pattern?

$$\triangleright \diamond \bigtriangledown \square \ ? \ \diamond \bigtriangledown \square$$

a. $\bigtriangledown$

b. $\square$

c. $\triangleright$

d. $\diamond$

Avance (Each Question is 6 Marks)

61. What is the product of 19 and 17?
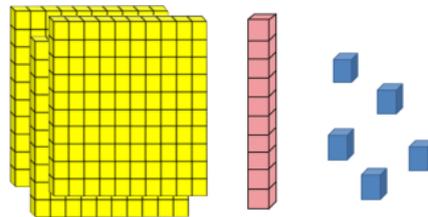
a. **215**

b. **315**

c. **415**

d. **425**

62. Fill in the blank:

181, ____, ____, 220, 233

a. 189, 201

b. 191, 207

c. 191, 204

d. 194, 207

63. Fill in the blank:

Z100, X90, ___, T70

a. V80

b. U80

c. W80

d. W60

64. Find the missing number in the puzzle.

$+$

|	+		
	4	1	5
	5	2	7
	9	3	?

a. 9

b. 10

c. 11

d. 12

65. A shopkeeper sells 67 eggs on Monday, 74 eggs on Tuesday and 59 eggs on Wednesday. How many eggs did he sell altogether?

a. 198

b. 200

c. 298

d. 300

66. What is the missing number in the number bond?

147 →+92→ ? →+59→ 298 →-134→ 164
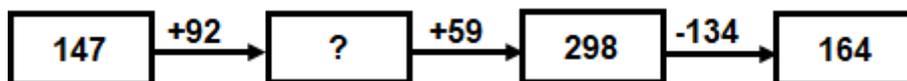
a. 179

b. 199

c. 221

d. 239

67. How many pairs of socks can be formed from 14 socks?

a. **6**

b. **7**

c. **8**

d. **9**

68. How many groups of 8 marbles can be formed from 56 marbles?

a. **3**

b. **5**

c. **7**

d. **8**

69. Which of the following is a multiple of 9?

a. **64**

b. **94**

c. **117**

d. **128**

70. What fraction of the figure is shaded?
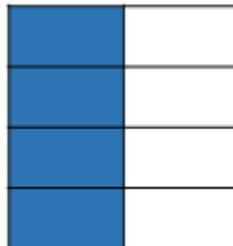
a. $\dfrac{1}{2}$

b. $\dfrac{3}{8}$

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

d. $\dfrac{1}{4}$

71. Out of 8 slices of pizza, Alex ate 3 and left the remaining for his brother. What fraction of pizza was left for the brother?

a. $\dfrac{1}{8}$

b. $\dfrac{3}{8}$

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

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

72. What is the resulting fraction?

$$41084 \text{ g} = \underline{\quad} \text{ kg} \underline{\quad} \text{ g}$$

a. 41, 84

b. 41, 804

c. 41, 840

d. 42, 84

73. Fill in the blank:

$$70809 \text{ ml} = \underline{\quad} \text{ l} \underline{\quad} \text{ ml}$$

a. 7, 890

b. 70, 89

c. 70, 809

d. 70, 890

74. A jar is filled with juice. After pouring 150 ml juice in 8 glasses equally, there is still 200 ml of juice left in the jar. How much juice was there in the jar initially?

a. 1200 ml

b. 1400 ml

c. 1600 ml

d. 2200 ml

75. A bag of flour weighs 200 g. If a chef needs 1 kg of flour to bake a cake, how many such bags of flour would he need?

a. **2**

b. **3**

c. **4**

d. **5**

76. How many hours in 180 minutes?

a. **1**

b. **2**

c. **3**

d. **4**

77. Kelly makes an origami bird in 3 minutes. How many birds she would have made in 27 minutes?

a. **9**

b. **10**

c. **11**

d. **12**

78. I am a 2D shape with no sides and no corners. Who am I?

a. **Square**

b. **Triangle**

c. **Circle**

d. **Kite**

79. Fill in the blank:

The given figure has ___ vertices, ___ edges and ___ faces.
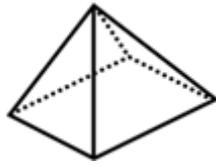
a. 4, 4, 4

b. 4, 6, 4

c. 5, 8, 5

d. 5, 8, 8

80. Fill in the blank:

○○○△△○ __ __

a. △○

b. △△

c. ○△

d. ○○

Answer Key

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