Test Booklet Code

M	0	6	1	9

NATIONAL TEACHERS COUNCIL

NATIONAL LEVEL
MATHEMATICS OLYMPIAD

Class 6

Time Allowed: 90 Minutes **Maximum Mark: 50**

This Test Booklet contains 8 pages. Do not open the Test Booklet until you are asked to do so.

Important instructions

1. ***The Answer Sheet is inside this Test Booklet.*** *When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with* ***blue/black ball point pen.***
2. *The question paper is divided into two sections.* ***Mathematical Reasoning*** *(40 Questions) and* ***Logical Reasoning*** *(10 Questions)*
3. *All the two Sections contain Multiple Choice Questions (MCQs). Each of these questions has four options out of which only one option is correct.*
4. *Each question should be answered by* ***darkening*** *the appropriate circle (A, B, C, or D) with a* ***blue or black ball pen****.*
5. *All questions are compulsory. There is no negative marks for wrong answer.*
6. *Answer recorded once in the answer sheet cannot be altered.*
7. *All rough works should be done only in the space provided for* ***rough work*** *in this question paper.*
8. *Calculator is not permitted in the examination hall.*
9. *Candidate should write his / her name in the space provided for the purpose.*

Candidate's Name:

Roll Number :

…… Candidate's Signature

…….. Invigilator's Signature

MATHEMATICAL REASONING

1 The least prime number is

[A] 0 [B] 1

[C] 2 [D] 3

2 On a straight road four cities are situated – A, B, C and D

Distance between B and D is 39 km, between A and C is 27 km and between C and D is 15 km. How far is A from B?

[A] -2 km [B] 3 km

[C] 24 km [D] 12 km

3 The HCF of three numbers is 24. If they are in the ratio 35 : 55 : 77, then the numbers are

[A] 280, 440, 615 [B] 105, 175, 231

[C] 900, 1400, 1900 [D] 840, 1320, 1848

4 ***Read the following statement of assertion and statement of reason carefully and select correct option.***

Assertion: Binomials and Trinomials are polynomials

Reason: An algebraic expression having two or more terms is called a multinomial

[A] Assertion is true and Reason is false

[B] Assertion is false and Reason is true

[C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion

[D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion

5 Two numbers are such that square of one is 224 less than 8 times the square of the other. If the numbers are in the ratio of 3 : 4, they are

[A] 12, 16 [B] 6, 8

[C] 9, 12 [D] None of these

6 The ratio between the length and the perimeter of a rectangle plot is 1 : 3 and the ratio between the breadth and perimeter of that plot is 1 ; 6. What is the ratio between the length and area of the plot?

[A] 2 : 1 [B] 1 : 6

[C] 1 : 8 [D] Data inadequate

7 $13 + (52 + 9) = (13 + 52) + 9$

This is an example of

[A] Closure property [B] Commutative property

[C] Associative property [D] Distributive property

8 The sum of two integers is 45. If one of the numbers is -23, then the other number is

[A] 68 [B] -68

[C] 22 [D] -22

9 The greatest negative integer among the following is

[A] 0 [B] -5

[C] -1 [D] -1000

10 $(2002 - 2000) \div 4.00 = x$, then the value of x is

[A] 0.05 [B] 0.5

[C] 50 [D] 4505

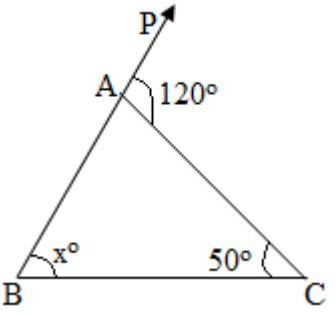
11 What is the measure of in the following figure?

[A] 80^o

[B] 50^o

[C] 60^o

[D] 70^o



12 If a = 3 and x = 6, then the value of $\frac{3ax - 7x + 2}{4ax + 3a - 2}$ is

[A] $\frac{14}{79}$ [B] $\frac{15}{79}$

[C] $\frac{35}{88}$ [D] $\frac{41}{79}$

13 The ratio of the speed of two cars is 2 : 3. If the second car covers 72 km in 2 hours, what is the speed of first vehicle?

[A] 18 km/h [B] 24 km/h

[C] 32 km/h [D] 54 km/h

14 If the measure of each angle of a regular polygon is 60^o, what is the name of the polygon?

[A] Quadrilateral [B] Hexagon

[C] Pentagon [D] Triangle

15 10 men working 6 hours a day can complete a work in 18 days. How many hours a day must15 men works to complete the same work in 12 days?

[A] 4 hours [B] 6 hours

[C] 7 hours [D] 9 hours

16 A car covers a certain distance travelling at a speed of 60 kmph and returns to the starting point at a speed of 40 kmph. Find the average speed for the entire journey.

[A] 48 kmph [B] 54 kmph

[C] 72 kmph [D] 94 kmph

17 How many times in a day, the two hands of a clock coincide?

[A] 11 [B] 12

[C] 22 [D] 24

18 2/5 % as a decimal equals

[A] 0.4 [B] 0.04

[C] 0.404 [D] 0.004

19 Roman numeral for 498 is

[A] CDCXVIII [B] CDCXIV

[C] CDXCVIII [D] CDXCVII

20 If **a** is divided by **b**, (b $\neq$ 0) is the divisor, **q** is the quotient and **r** is the remainder, then **a = bq + r,** where

[A] $0 \leq r \leq b$ [B] $0 \geq r > b$

[C] $0 \leq r < b$ [D] $0 < r > b$

21 If the expanded form of ***38.235*** is ***3A + 8B + 2C + 3D + 5E***, then find the value of ***6A + 2C +3E***

[A] 62.03 [B] 6.2003

[C] 60.2003 [D] 60.203

22 $1 + \frac{9}{100} + \frac{3}{1000}$ is equal to

[A] 1.0093 [B] 1.093

[C] 1.903 [D] 1.93

23 Which one of the following expression has the value -19?

[A] $9 - |-5| - |-33|$ [B] $9 + |-5| - |-33|$

[C] $-9 + |-5| - |-33|$ [D] $9 + |-5| + |-33|$

24 A number when divided by 875 gives quotient 18 and remainder 385. The number is

[A] 16135 [B] 16130

[C] 16140 [D] 16145

25 Two consecutive prime numbers having a difference of 2 is called

[A] Composite [B] Co-primes

[C] Twin primes [D] Even

26 Square of a negative integer is

[A] Negative [B] Positive

[C] Zero [D] Positive or negative

27 If '**+**' means '**X**', '**-**' means '÷', then the value of **3 + 4 – 2** is

[A] 6 [B] -3

[C] 1 [D] -1

28 The LCM of two coprime numbers is their

[A] Sum [B] Difference

[C] Product [D] Quotient

29 The set of points extending infinitely in all directions on the same flat surface is

[A] Line [B] Plane

[C] Line segment [D] Point

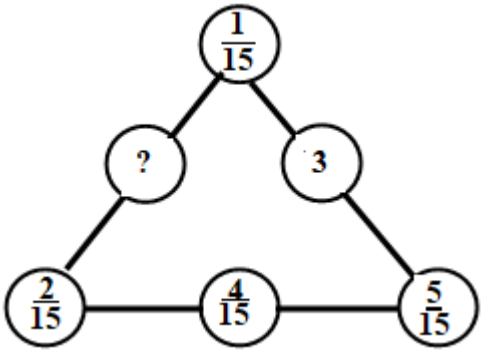
30 What should be placed in the empty space (?) so that the sum of fractions on each side of the triangle is same?

[A] $\frac{7}{15}$

[B] $\frac{9}{15}$

[C] $\frac{6}{15}$

[D] $\frac{8}{15}$



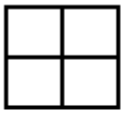
31 What is the following number in the standard form?

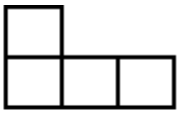
2 + (8 X 0.1) + 6 X 0.01) + (4 + 0.001)

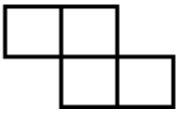
[A] 0.2864 [B] 2.864

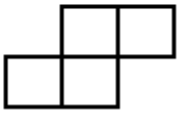
[C] 28.64 [D] 2864

32 All the figures below consist of the same four squares of equal size. Which figure has the smallest perimeter?

[A] 

[B] 

[C] 

[D] 

33 If six times a number is 48, then the number is

[A] -8 [B] 1

[C] 48 [D] 8

34 Estimate the sum of **(21397 +42505)** to nearest thousand.

[A] 64000 [B] 65490

[C] 70000 [D] 92000

35 Which of the following pairs is not in proportion?

[A] 3 : 2 and 6 : 4 [B] 2 : 3 and 4 : 9

[C] 5 : 7 and 10 : 14 [D] 6 : 7 and 18 : 21

36 Which of the following can be the remainder when a positive integer is divided by 17?

[A] 71 [B] 19

[C] 12 [D] 17

37 The population of a city is 49050102. The population of men and women in the city are 19040102 and 10037893 respectively. What is the population of the children in the city?

[A] 19792107 [B] 19972107

[C] 40048893 [D] 10048893

38 Monika is saving money to buy a necklace. She earned $\frac{3}{10}$ and $\frac{3}{5}$ of the required amount in the first and second moth respectively. What fraction o necklace amount is earned by Monika?

[A] $\frac{3}{10}$ [B] $\frac{6}{10}$

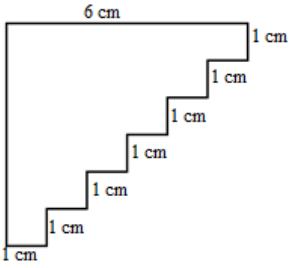
[C] $\frac{9}{10}$ [D] $\frac{6}{5}$

39 If **a** is a whole number, then which one of the following number does not satisfy the relation $a \div a = 1$?

[A] 0 [B] 1

[C] 100 [D] None of these

40 Find the area of the following figure



[A] 36 cm^2

[B] 30 cm^2

[C] 21 cm^2

[D] 27 cm^2

LOGICAL REASONING

41 Choose the alternative which is closely resembles the mirror image of the given combination.

INFORMATIONS

[A] 

[B] 

[C] 

[D] 

Select a suitable figure from the Answer Figures that would replace the question mark (?).

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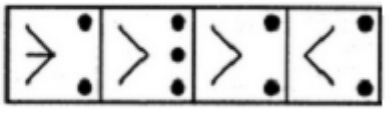
Problem Figures:

Answer Figures:



[A] [B] [C] [D]

43 In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column wise. Find out this trend and choose the missing character accordingly.

B	G	N
D	J	R
G	N	?

[A] U

[B] V

[C] W

[D] X

44 What should come next in the following letter sequence?

A A B A B C A B C D A B C D E A B C D

[A] A [B] E

[C] C [D] B

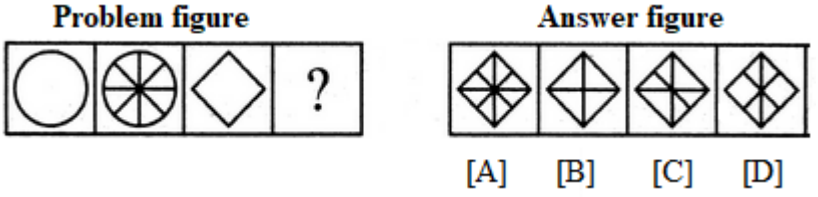
45 Identify the missing number in the series.

16, 18, 21, ?, 30

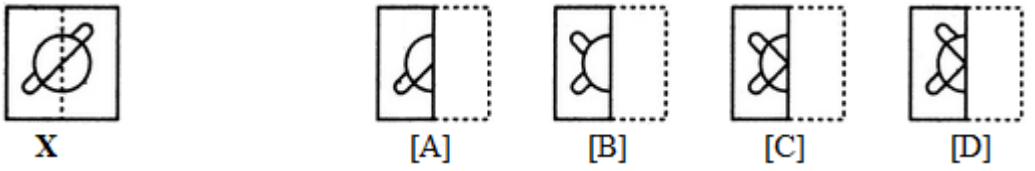
[A] 27 [B] 22

[C] 28 [D] 25

46 Select a suitable figure from the Answer Figures that would replace the question mark (?).



47 Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



48 A is B's sister. C is B's mother. D is C's father. E is D's mother. Then, how is A related to D?

[A] Grandfather [B] Grandmother

[C] Daughter [D] Granddaughter

49 In a row of boys, If A who is 10th from the left and B who is 9th from the right interchanges their positions, A becomes 15th from the left. How many boys are there in the row?

[A] 23 [B] 31

[C] 27 [D] 28

50 If South-East becomes North, North-East becomes West and so on. What will West become?

[A] North-East [B] North-West

[C] South-East [D] South-West

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