



National Analytical Brains Competition 2020

NAB Competition 2020 - Grade 08 & Above

Mathematical Ability

All questions are mandatory. Please note there is no negative marking:

1. The area of a rectangle 144 m long is same as that of a square of side 84 m. The width of the rectangle is:

- 14 m
- 49 m
- 7 m
- None of these

2. Which smallest number must be added to 2203 to get a perfect square?

- 6
- 3
- 8
- 1

3. A PT teacher of a school wants to form a square from 36562 students. After arrangement he found some students are left. How many students were left?

- 80
- 82
- 97
- 81



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4. The height of an equilateral triangle is 3cm. Its area is :

- $\sqrt{3}$ sq cm
- $2\sqrt{3}$ sq cm
- 26 sq cm
- $3\sqrt{3}$ sq cm

5. Find the value of $\sqrt[3]{(-2300 \times 5290)}$

- 230
- 2300
- 230
- 23

6. A man sold two pipes at ₹ 12 each. On one he gained 20% and another he lost 20%. Overall he :

- gained ₹ 1
- lost ₹ 1
- gained ₹ 2
- neither gained nor lost



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7. Square root of $(\sqrt{2500} + \sqrt{961})$ = Square of x. Value of x =

- 9
- 6561
- 3
- 81

8. A shopkeeper marks his pen ₹ 12. A discount of 15% is given on it. A second discount is given to bring the price down to ₹ 8.16. The rate of second discount is:

- 20%
- 18%
- 15%
- 21%

9. The dimensions of a plot are 300 m x 250 m. A builder builds 3 roads which are 3 m wide along the length on either side and one in the middle. On either side of the middle road he builds houses to sell. How much area did he get for building the houses?

- 72800 sq.m
- 7200 sq. m
- 72400 sq. m
- 72300 sq. m



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10. The value of $\sqrt{535.9225}$

- 23.45
- 23.15
- 23.50
- 28.15

11. A retailer buys some silk scarves for ₹ 460 and sells them at 60% profit. For how much does he sell them?

- 676
- 620
- 520
- 736

12. A rectangular park of length 80 m and breadth 50 m is there in a locality. Two crossroads perpendicular to each other of width 5 m needs to be constructed in between the park for walking. Find the area of horizontal Road.

- 400 sq m
- 420 sq m
- 250 sq m
- None of these



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13. What is the radius of the largest circle that can be cut-out of the rectangle measuring 24 cm in length and 22 cm in breadth?

- 12 cm
- 11 cm
- 10 cm
- 15 cm

14. What is value of square root of

$$\frac{(0.16)^2 + (0.20)^2 + (0.25)^2}{(0.016)^2 + (0.020)^2 + (0.025)^2}$$

- 0.1
- 100
- 0.01
- 10

15. The three numbers are in the ratio 2 : 3 : 4. The sum of their cubes is 33957. Find the smallest number.

- 14
- 11
- 7
- 99



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16. The area of a rectangular field whose length is twice its breadth is 4050 sq. m. Find the perimeter of the field.

- 180m
- 270m
- 210 m
- 230 m

17. Rahul walks 12 m North from his house and turns West to walk 35 m to reach his friend's house. While returning, he walks diagonally from his friend's house to reach back to his house. What distance did he walk, while returning?

- 37 m
- 31 m
- 47 m
- 41 m

18. Four horses are tethered with equal ropes at 4 corners of a square field of side 84 m, so that they just can reach one-another. Find the area left ungrazed by the horses.

- 1420 m Square
- 1512 m Square
- 1514 m Square
- 1412 m Square



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19. In the number $a4b$, "a" is the smallest two digit perfect cube and a's unit digit exceeds "b" by 3. What is the number?

- 2734
- 877
- 2744
- None of these

20. A rectangular sheet of dimensions 25 cm x 7 cm is rotated about its longer side. Find the surface area of the solid thus generated.

- 275 sq. cm
- 175 sq. cm
- 180 sq. cm
- None of these



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Logical Reasoning Ability

All questions are mandatory. Please note there is no negative marking:

Q 21: How many 4's are there in the following number sequence which are immediately preceded by 7 and immediately followed by 3? 1

5932174269746132874138325674395820187463

- Three
- Four
- Five
- One

Q 22: In the following alphabet series. Which letter is exactly in middle of F and R.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- L
- M
- N
- None of these



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Q 23: Which number will replace “?” mark:

5, 2, 7, 9, 16, 25, ?

- 41
- 36
- 31
- 52

Q 24: If all the words are arranged alphabetically as in a dictionary then which one will come in the middle?

- Sport
- Spouse
- Squash
- Sporadic
- Sprout

Q 25: Going 50 m to the South of her house, Rashi turns left and goes another 20 m. Then, turning to the North, she goes 30 m and then starts walking to her house. In which direction is she walking now ?

- North-west
- North
- South-east
- East



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Q26: Cyclone is related to Anticyclone in the same way Flood is related to

- Devastation
- Havoc
- River
- Drought

Q 27: If 'rat' is called 'dog', 'dog' is called 'monkey', 'monkey' is called 'leopard', 'leopard' is called 'fox' and 'fox' is called 'giraffe', which is reared as pet ?

- Rat
- Dog
- Monkey
- leopard
- Fox

Q 28: In a certain code, '786' means 'study very hard', '958' means 'hard work pays' and '645' means 'study and work'. Which of the following is the code for 'very'?

- 8
- 6
- 7
- Cannot be determined
- None of these



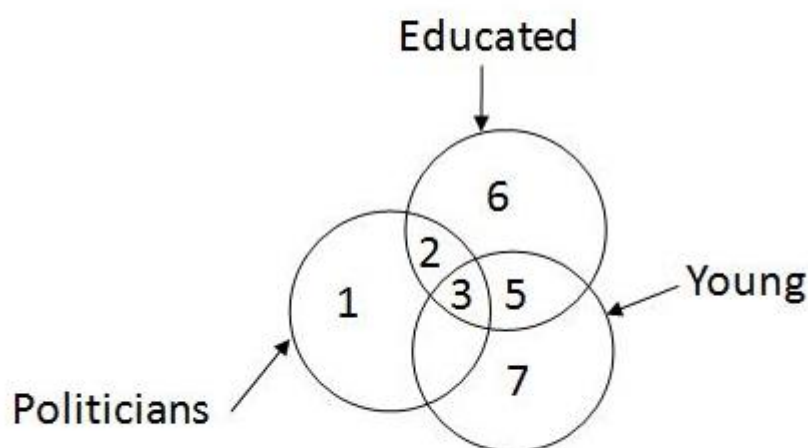
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Q 29: There is a certain relation between two words given on one side of :: .
Out of the below four alternatives, one word will have similar relation with the
word on other side of ::

Newspaper : Press :: Cloth : ?

- Tailor
- Textile
- Fibre
- Mill

Q 30: Which region denotes the politicians which are neither young nor
educated?





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2

3

1

7

Q 31: Four words are alike in some manner, while the fifth one is different.
Choose out the odd one:

Run

Walk

Think

Jump

Swim

Q 32: Choose the number which is different from the others.

8

36

64

125

216



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Q 33: Find the missing term in the series:

R, U, X, A, D, ?

- F
- G
- H
- I

Q 34: Find the missing term in the series:

240, ?, 120, 40, 10, 2

- 180
- 240
- 160
- 200

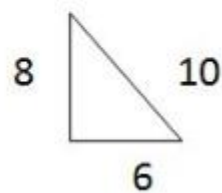
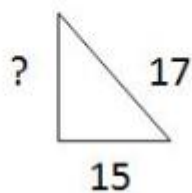
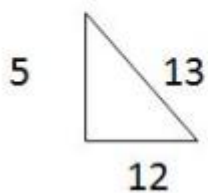
Q 35: In a certain language, POPULAR is coded as QPQVMBS, which word will be coded as GBNPVT

- FARMER
- FAMOUS
- FRAMES
- FARMES



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Q 36:



- 7
- 8
- 6
- 11

Q 37: Below three words are related in some way.

1 point

Apple, Golden Apple, Fruits



A



B



C



D



E

- A
- B
- C
- D
- E



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Q 38: Rashi is seventeenth from the left end of a row of 29 girls and Kavya is 17th from the right end of the same row. How many girls are there between them in the row ?

- 3
- 5
- 6
- Cannot be determined

Q 39: Arrange the given words in a meaningful sequence and then choose the most appropriate sequence from the following options.

1. Police 2. Punishment 3. Crime 4. Justice 5. Judgement

- 1,2,3,4,5
- 3,1,2,4,5
- 3,1,4,5,2
- 5,4,3,2,1



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Q 40: Which option will replace the "?" in the below matrix

A	D	H
F	I	M
?	N	R

- K
- N
- O
- P



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Real Life Problems

Read the following passage to answer these questions from 41 to 45

Anita, Mahima, Rajan, Lata and Deepti are five cousins. Anita is twice as old as Mahima. Rajan is half the age of Mahima. Anita is half the age of Deepti and Rajan is twice the age of Lata.

Q 41: Who is the youngest ?

- Deepti
- Rajan
- Lata
- Anita

Q 42: Who is the eldest ?

- Deepti
- Lata
- Anita
- None of these

Q 43: Which of the following pairs of persons are of the same age?

- Mahima and Lata
- Anita and Mahima
- Mahima and Rajan
- None of these



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Q 44: Anita is younger than _____?

- Rajan
- Mahima
- Deepti
- None of these

Q 45: If Mahima is 16 years old, then what is the age of Lata?

- 4 years
- 5 years
- 7 years
- 14 years

Q 46: You want to buy a carpet to cover drawing room of your house which is 14 m by 9 m. How much long carpet you need to buy if width of the carpet is 63cm ?

- 200 m
- 210 m
- 220 m
- 185 m



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Q 47: You deposited a sum of ₹2000 in the bank for 18 months. At the time of depositing bank offered you 6% rate of interest (Simple) p.a.. How much money you will get back after 18 months.

- 2120
- 2180
- 2216
- 2240

Q 48: You want to construct a water tank to store 42000 L of water. If length of tank is 6 m and breadth is 3.5 m , then how much deep the water tank should be?

- 2 m
- 5 m
- 6 m
- 8 m

Q 49. A man's age is now 3 times that of his son. After 15 years it would be double that of his son, the present age of his son is:

- 15 years
- 18 years
- 21 Years
- 24 years



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Q 50. MRP of a fan is ₹1500. The shopkeeper is offering 20 % discount. But you have only ₹1104. How much more discount will you need to buy the fan?

- 8%
- 10%
- 12%
- 15%