



INSTITUTE OF MATHEMATICS EDUCATION

MATHS APTITUDE TEST – 2019 (Higher Primary Level)

Std. : VII and VIII

Question Paper

Date : 28.09.2019

Time : 2 Hours

Total Marks : 100

Instructions : 1) Use separate answer sheet to mark answers. 2) First read question carefully, get the answer and darken the circle of respective correct alternative on answer sheet. 3) **No change is allowed, so think twice and then darken the appropriate circle.** 4) Note that half circle darkened or more than one circle darkened, cross or tick on the circle, will not be given marks.

5) If questions are not attempted, marks will not be given. 6) **You can use separate paper for rough work.**

Q.1: Evaluate : $3a^0 - 2b^0 = ?$

- A) $3a - 2b$ B) ab C) 1 D) 0

Q.2: Find the G.C.D. of 1.75, 5.6, 8.4

- A) 0.07 B) 0.7 C) 7 D) 70

Q.3: If $A : B = 5 : 7$ and $B : C = 6 : 11$, then $A : B : C = ?$

- A) $35 : 49 : 77$ B) $35 : 42 : 77$
C) $30 : 42 : 77$ D) $55 : 66 : 77$

Q.4: 5% of 50% of 1250 = ?

- A) 31.25 B) 2.5 C) 25.25 D) 125

Q.5: A man buys a cycle for ₹ 2800 and sells it at loss of 15%. Find the selling price in ₹.

- A) 1090 B) 1160 C) 2160 D) 2380

Q.6: If simple interest on certain principal at $16\frac{2}{3}\%$ per annum for 9 months is ₹ 8500, then find the principal in ₹.

- A) 17000 B) 34000 C) 68000 D) none

Q.7: The average of five consecutive even numbers is 50. Find the difference between highest and lowest numbers.

- A) 6 B) 16 C) 10 D) 8

Q.8: In how many seconds will a train 120 m long cross an electric pole, if its speed is 90 km/hr ?

- A) 4.8 B) 1.75 C) $4/3$ D) 8

Q.9: A can do a work in 12 days and B in 18 days. If they work on it together for 4 days, then what part of the work is left?

- A) $5/36$ B) $5/9$ C) $9/4$ D) $4/9$

Q.10: Find the value of

$$\sqrt[3]{0.001} + \sqrt[3]{0.008} + \sqrt[3]{0.064} + \sqrt[3]{0.125}$$

- A) 0.4 B) 0.12 C) 1.2 D) 40

Q.11: If $(16)^{3/4} = x$, then $x^2 = ?$

- A) 16 B) 64 C) 4096 D) 128

Q.12: If $a = \sqrt{2} - (1/\sqrt{2})$ and $b = \sqrt{2} + (1/\sqrt{2})$, then find $a^2 - b^2$

- A) $2\sqrt{2}$ B) -8 C) -4 D) $9/8$

Q.13: The length of hypotenuse of an isosceles right angled triangle is = 4 cm, then find its perimeter.

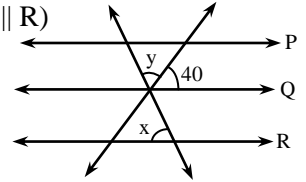
- A) $4(\sqrt{2} + 1)$ B) $\sqrt{2} + 4$
C) $\sqrt{8} + 2$ D) $\sqrt{2} + 1$

Q.14: $(\sqrt{27} - \sqrt{3})^2 = ?$

- A) 24 B) 21 C) $\sqrt{27} - 3$ D) 12

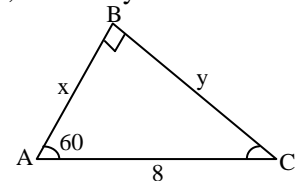
Q.15: Refer adjacent figure. Which of the following is true? (Lines $P \parallel Q \parallel R$)

- A) $x = y = 140^\circ$
B) $x + y = 40^\circ$
C) $x + y = 140^\circ$
D) $x - y = 40^\circ$



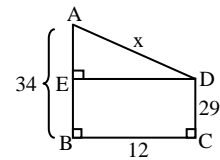
Q.16: In the following figure, find $x + y$.

- A) $\sqrt{3} + 1$
B) 8
C) $8\sqrt{3}$
D) $4(\sqrt{3} + 1)$



Q.17: In the following figure, find the value of x.

- A) 12
B) 5
C) 13
D) 22



Q.18: The length and diagonal of a rectangle are 40 cm and 41 cm resp. Find its area (sq.cm.)

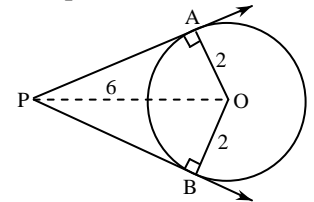
- A) 369 B) 360 C) 1640 D) 162

Q.19: If curved surface area of a cone with radius of base 40 cm is 6280 cm^2 , then find its slant height in cm. (Use $\pi = 3.14$)

- A) 5 B) 40 C) 50 D) 25

Q.20: In the given figure, find perimeter of $\square AOBP$.

- A) 16
B) $4 + 8\sqrt{2}$
C) $4 + \sqrt{2}$
D) 12



Q.21: If measure of exterior angle of a regular polygon is 60° and length of longest diagonal is 9 cm, then find its perimeter in cm.

- A) 27 B) 31.5 C) 18 D) 13.5

Q.22: A number has 3 prime factors such that their product is even and it also contains a pair of twin prime numbers. If one of the factors is 11, what is the number?

- A) 52 B) 552 C) 390 D) 286

Q.23: If $x : y = 4 : 5$, then find $(5x + 4y) : (5x - 2y)$

- A) 1 : 4 B) 4 : 1 C) 1 : 2 D) 2 : 5

Q.24: If side of a square is increased by 10%, then percent increase in the area of square is

- A) 21% B) 20% C) 10% D) 110%

Q.25 : The ratio of cost price to sell price is 3 : 4, then find profit percentage.

- A) 33.33 B) 16.66 C) 25.5 D) none

Q.26 : If the difference between amounts by simple and compound interest at the end of two years at 8% per annum on certain principle is ₹ 128, then find principal in ₹.

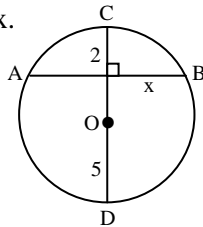
- A) 64000 B) 12800 C) 20000 D) none

Q. 27 : If $x = \frac{\sqrt{3} + \sqrt{7}}{\sqrt{3} - \sqrt{7}}$, $y = \frac{\sqrt{3} - \sqrt{7}}{\sqrt{3} + \sqrt{7}}$, then $x - y = ?$

- A) $-\sqrt{7}$ B) -5 C) $-\frac{10}{4}$ D) $-\sqrt{21}$

Q.28 In the given figure, find x.

- A) 3
B) 4
C) 5
D) 7



Q. 29 : Simplify : $\frac{(\sqrt{5})^3 - (\sqrt{2})^3}{(\sqrt{5} - \sqrt{2})} = ?$

- A) $\sqrt{5}$ B) $\sqrt{2}$ C) $7 + \sqrt{10}$ D) none

Q.30 : A man can do a piece of work in 6 days, but with the help of his son, he can do it in 4 days. In how many days can the son do it alone?

- A) 2.4 B) 12 C) 10 D) 1/12

Q. 31 : If $2^{m^2} \cdot 8^m = \sqrt{\frac{2^{100}}{2^{44}}}$, then $m =$ [$m > 0$]

- A) 4 B) 2 C) 8 D) 16

Q.32 : Sum of measures of interior angles of regular polygon is 2880° . Each exterior angle is

- A) 144° B) 40° C) 25° D) 20°

Q. 33 : If the sum of number and its reciprocal is 5.20 and the difference of the number and its reciprocal is 4.80, then find the number.

- A) 10 B) 5 C) 0.4 D) 4

Q. 34 : A circle has chord AB of length 30 cm and chord BC of length 16 cm. If $m\angle ABC = 90^\circ$, then find radius of circle in cm.

- A) 17 B) 14 C) 23 D) 25

Q.35 : If a, b, c, d, e, f are six consecutive odd numbers, then find their average.

- A) $abcdef/6$ B) $4(b + c + d + e)$
C) $(a + f)/6$ D) $a + 5$

Q.36 : A reactange has dimensions 40 cm \times 30 cm. If length is increased by 150%, then what should be the width of the rectangle in cm. so that its area remains same.

- A) 20 B) 12 C) 24 D) 15

Q. 37 : A spherical ball has diameter of 4.2 cm, find its volume in cm^3 (Use $\pi = 22/7$)

- A) 36.960 B) 18.48 C) 38.808 D) none

Q. 38 : Find the area of regular hexagon in sq. cm. if length is equal to 10 cm.

- A) 300 B) $150\sqrt{3}$ C) 600 D) 450

Q.39 : A boat travels from port A to port B and back in 10 hours. If speed of boat in still water is 30 kmph and speed of stream is 6 kmph, then find the distance between the two ports in km.

- A) 288 B) 144 C) 72 D) 60

Q.40 : A square of one number equals the cube of other number. If one number is two times of the other, then which of the following can be the value of larger number?

- A) 6 B) 12 C) 8 D) 9

Q.41 : Two cubes, each of edge 15 cm, are joined to form single cuboid. What is the surface area of the new cuboid so formed in sq. cm.

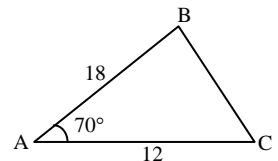
- A) 2250 B) 1350 C) 3375 D) none

Q.42: G.C.D. of two numbers is 8. The L.C.M. of the numbers equals 3 times of one number and 5 times of other number. Find the value of LCM.

- A) 40 B) 120 C) 200 D) 150

Q. 43 : ΔABC is an isosceles triangle. Find the perimeter.

- A) 48
B) 42
C) 40
D) none



Q. 44 : Find the square root of $3x + \sqrt{x} + (1/12)$

- A) $\sqrt{3x + \frac{1}{12}}$ B) $\sqrt{3x} + \frac{1}{2\sqrt{3}}$
C) $\sqrt{3x + \sqrt{x}}$ D) Any other

Q.45: At present ratio of age of child : mother : father is 1:8:10 and child is 3 years old. Find the ratio of their ages after 6 years.

- A) 3:7:8 B) 3:8:10 C) 3:10:12 D) none

Q.46 : $111\frac{1}{12} + 111\frac{1}{4} + 111\frac{5}{12} + 111\frac{7}{12} + 111\frac{3}{4} + 111\frac{11}{12} = ?$

- A) 114 B) 669 C) 342 D) 666

Q.47 : If $x = 16 - \sqrt{220}$, then $\sqrt{x} + \sqrt{125} = ?$

- A) $4 - 2\sqrt{55}$ B) $4 - \sqrt{55}$
C) $\sqrt{11} + 4\sqrt{5}$ D) $\sqrt{11} - \sqrt{5}$

Q.48 : If $\frac{1}{4.178} = 0.23935$, then $\frac{2}{0.004178} = ?$

- A) 478.70 B) 47.870
C) 4.7870 D) 484.26

Q.49 : Simplify :

$$\frac{616 \times 616 \times 616 + 284 \times 284 \times 284}{616 \times 616 - 616 \times 284 + 284 \times 284} = ?$$

- A) $\frac{900}{616 \times 284}$ B) -1
C) 900 D) 1000

Q.50 : Find the average of all prime numbers from 80 to 120.

- A) 99 B) 89
C) 102.33 D) 100.25

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Solutions

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Q.1 : (C)	Q.2: (A)	Q.3: (C)	Q.4: (A)	Q.5: (D)
Q.6: (C)	Q.7: (D)	Q.8: (A)	Q.9: (D)	Q.10 (C)
Q.11 (B)	Q.12 (C)	Q.13 (A)	Q.14 (D)	Q.15 (C)
Q.16 (D)	Q.17 (C)	Q.18 (B)	Q.19 (C)	Q.20 (B)
Q.21 (A)	Q.22 (D)	Q.23 (B)	Q.24 (A)	Q.25 (A)
Q.26 (C)	Q.27 (D)	Q.28 (B)	Q.29 (C)	Q.30 (B)
Q.31 (A)	Q.32 (D)	Q.33 (B)	Q.34 (A)	Q.35 (D)
Q.36 (B)	Q.37 (C)	Q.38 (B)	Q.39 (B)	Q.40 (C)
Q.41 (A)	Q.42 (B)	Q.43 (A)	Q.44 (B)	Q.45 (C)
Q.46 (B)	Q.47 (C)	Q.48 (A)	Q.49 (C)	Q.50 (D)