

# INSTITUTE OF MATHEMATICS EDUCATION

## MATHS APTITUDE TEST - 2017 (Primary Level)

Std. - VII and VIII  
Time : 2.00 to 4.00

Question Paper

Date : 15. 07.2017  
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 of 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 doing rough work.

**Q. 1)** Simplify

$$1 - 19 - 19 \div 19 + 19 \times 19$$

- A) 361    B) 362    C) 342    D) 341

**Q. 2)** Find G.C.D./H.C.F. of the following.

$$a^{19}b^{27}c^{15}d^5, a^5b^{17}c^{18}d^{19}$$

- A)  $b^{10}c^{15}d^5a^5$     B)  $c^{15}b^{17}d^5a^5$   
C)  $a^{19}b^{27}c^{18}d^{19}$     D)  $abcd$

**Q. 3)** Find L.C.M. of the following.  $\frac{9}{13}, \frac{11}{17}, \frac{3}{11}, \frac{55}{19}$

- A) 1    B)  $\frac{1}{13 \times 17 \times 11 \times 19}$     C) 495    D) Any other

**Q. 4)** Find the fourth proportional to 5, 9, 13.

- A) 23    B) 16    C) 15    D) 23.4

**Q. 5)** 1.6 = how many percent ?

- A) 16%    B) 160%    C) 1.60%    D) 1600%

**Q. 6)** What is X % of 1000 X<sup>2</sup> ?

- A) 10x<sup>2</sup>    B) 10x    C) 0.1x<sup>3</sup>    D) 10x<sup>3</sup>

**Q. 7)** If C.P. of one article is Rs. X, and profit expected is 500%, then what must be difference between S. P. and C. P.?

- A) 6x    B) 4x    C) 5x    D) Any other

**Q. 8)** If principal invested is same, and Ratio of periods is 3:2 and the ratio of interests obtained is 5:4, in two different Bank deposits, then what will be ratio of rate of simple interests of two Banks ?

- A) 15:8    B) 8:15    C) 6:5    D) 5:6

**Q. 9)** If P = Rs.100, R. = Rs. 10% and N = 1 year. Then find the difference between the amounts by compound interest if calculated annually and half yearly.

- A) Rs. 1.00    B) Rs. 0.5    C) Rs. 0.25    D) Rs. 1.5

**Q. 10)** First three numbers give average 3, last two numbers give average 43, then what is the average of all numbers ?

- A) 40    B) 20    C) 29    D) 19

**Q. 11)** If a car has travelled 300 km. in first 5 hrs; and then it reached destination after 1 hr. but distance travelled is 400 km. from starting, then how much speed driver must have maintained in last hr.?

- A) 100 km/hr.    B) 80 km/hr.  
C) 90 km/hr.    D) Any other

**Q. 12)** A finishes certain work in 5 days and B finishes same work in 8 days. Then what is the total work finished by them; if they work together for 2 days ?

- A)  $\frac{40}{13}$     B)  $\frac{20}{13}$     C) Any other    D)  $\frac{13}{20}$

**Q. 13)**  $\sqrt{0.000361} \div \sqrt{0.0361} = ?$

- A) 0.01    B) 0.1    C) 0.001    D) Any other

**Q. 14)**  $(0.16)^{-1.5} = ?$

- A)  $(2.5)^3$     B)  $(25)^2$     C) 2.5    D)  $(.25)^3$

**Q. 15)** Simplify  $x^{\frac{1}{3}}(x^2 + x + x^{\frac{1}{2}})$

- A)  $x^{\frac{7}{3}} + x^{\frac{4}{3}} + x^{\frac{1}{6}}$     B)  $x^{\frac{2}{3}} + x^{\frac{1}{3}} + x^{\frac{1}{6}}$

- C)  $x^{\frac{7}{3}} + x^{\frac{4}{3}} + x^{\frac{5}{6}}$     D) Any other

**Q. 16)**  $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{5}$  find value of  $x + \frac{1}{x}$

- A) 5    B) 4    C) 6    D) Any other

**Q. 17)** Find the smallest number whose one fifth part is increased by 6 gives its one fourth part.

- A) 120    B) 240    C) 720    D) 600

**Q. 18)**  $(a + \sqrt{3}b)(a - \sqrt{2}b) = ?$

- A)  $a^2 - (\sqrt{3} - \sqrt{2})ab + \sqrt{6}b^2$   
B)  $a^2 + (\sqrt{3} - \sqrt{2})ab + \sqrt{6}b^2$   
C)  $a^2 - (\sqrt{3} - \sqrt{2})ab - \sqrt{6}b^2$   
D)  $a^2 + (\sqrt{3} - \sqrt{2})ab - \sqrt{6}b^2$

**Q. 19)** In the given figure

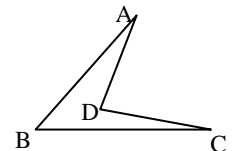
$$\angle A = (x - 20)^\circ$$

$$\angle B = (x + 10)^\circ$$

$$\angle C = (x + 15)^\circ$$

then find  $\angle ADC$

- A)  $(3x + 5)^\circ$     B)  $(3x + 15)^\circ$     C)  $(3x - 5)^\circ$     D) Any other

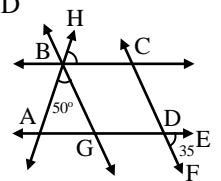


**Q. 20)** In the given Fig.  $BC \parallel AD$ ,  $BG \parallel CD$

$$\angle ABG = 50^\circ \text{ and } \angle EDF = 35^\circ$$

then find  $\angle HBC$

- A) 35°    B) 95°  
C) 85°    D) Any other



**Q. 21)** Height of an equilateral triangle is ..... times of its side.

- A) 2    B) 3    C)  $\frac{1}{2}$     D)  $\frac{\sqrt{3}}{2}$

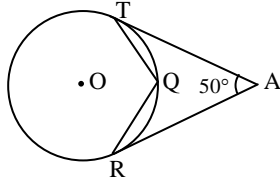
Q. 22) Area of triangle is 600 sqcm. If ratio of its sides are 6:8:10 then find the perimeter of the triangle.

- A) 25 cm B) 24 cm C) 120 cm D) 60 cm

Q. 23) The diagonal of a cube is  $5\sqrt{3}$  cm. find its surface area.

- A) 125 cm<sup>2</sup> B) 150 cm<sup>2</sup> C) 75 cm<sup>2</sup> D) 450 cm<sup>2</sup>

Q. 24) In the circle with center 'O', AT and AR are tangents. If Q is any point on arc TR find  $\angle TQR$  If  $\angle TAR = 50^\circ$



- A) 130° B) 115°  
C) 65° D) Any other

Q. 25) If angles of pentagon are in the ratio 2:4:6:7:8, then find the measure of largest angle.

- A) 120° B) 140° C) 100° D) 160°

Q. 26) Three numbers are in the ratio of 5:7:3 and their L.C.M is 1050 Find G.C.D. of them.

- A) 15 B) 21 C) 35 D) 10

Q. 27) If  $\frac{1}{4} : \frac{1}{x} = \frac{1}{x} : \frac{1}{0.64}$ , then x = ?

- A) 2 B) 2.6 C) 1.6 D) 0.6

Q. 28) The C. P. of an article is 35% of its S.P., then what percent of C. P is S. P. ?

- A) 65% B)  $85\frac{5}{7}\%$  C)  $285\frac{5}{7}\%$  D) Any other

Q. 29) In how much period would the simple interest on a certain sum be 2.5 times the principal at 10% p.a ?

- A) 20 years B) 15 years C) 20.5 years D) 25 years

Q. 30) There are five consecutive odd natural numbers, a, b, c, d, e then what will be average of them?

- A)  $\frac{abcde}{5}$  B) 5(a + 4) C) a + 4 D) None of these

Q. 31) Santosh covered a certain distance in 1 hr. 48 min. on Bike. First he covered  $\frac{2}{3}$ rd distance at 40 km/hr. and rest covered at 60 km/hr. Find total distance covered ?

- A) 92 km. B)  $92\frac{4}{7}$  km C) 120 km. D) Any other

Q. 32) A can do a certain job in 16 days B is 60% faster (more efficient) than A. Then how many days B alone will require to finish the same work ?

- A) 12 days B) 10 days C) 14 days D) Any other

Q. 33) Find square root of  $3 - \sqrt{5}$

- A)  $\sqrt{\frac{5}{2}} - \sqrt{\frac{1}{2}}$  B)  $\sqrt{\frac{5}{2}} + \sqrt{\frac{1}{2}}$  C)  $\sqrt{5} - \sqrt{2}$  D) Any Other

Q. 34) Simplify.  $\frac{(a+b)^2 - (a-b)^2}{a^2b - ab^2}$

- A)  $\frac{4}{ab}$  B)  $\frac{ab}{a-b}$  C)  $\frac{4}{a-b}$  D) Any other

Q. 35) What should be subtracted from the sum of  $(3x^3 + 2x^2 + 5)$  and  $(7x^2 + 5x - 12)$  to get  $(2x^3 + 11x^2 + 5x - 5)$

- A)  $x^3 + 2x^2 + 5x - 2$  B)  $x^3 - 2x^2 - 2$   
C)  $x^3 - 2x^2 - 5x - 2$  D) Any other

Q. 36) In 10 years A will be twice as old as B was 10 years ago. If A is 9 years older than B. Find present age of 'B'

- A) 19 years B) 39 years C) 29 years D) 48 years

Q. 37) If difference of two numbers is 2 and difference of their cubes is 218 then find their sum.

- A) 7 B) 12 C) 5 D) 144

Q. 38) 1 cm<sup>3</sup> of gold weighs 12 gm. and gold costs ₹ 3000 per gram then find the cost of gold biscuit of dimension 3.2 cm × 2 cm. × 2 mm.

- A) ₹ 50,000 B) ₹ 36,000 C) ₹ 42,000 D) ₹ 50,400

Q.39) If a = 0.1039, then find the value of  $\sqrt{9a^2 - 6a + 1} + 2a$ .

- A) 0.8 B) 0.8961 C) 0.9861 D) Any Other

Q. 40) If sum of all angles of a regular polygon is 900 then how many triangles can be formed in that polygon without any repetition, covering area of polygon ?

- A) 7 B) 6 C) 5 D) 4

Q. 41) What will be the remainder if  $43^7 + 6$  is divided by 44?

- A) 1 B) 42 C) 5 D) 41

Q. 42) If  $101 \times 2017 = 203717$  so you observed '37' at middle one time only. Now, to get 37 at middle but 5 times by how much 2017 is to be multiplied ?

- A) 10101010101 B) 101010101010  
C) 10101010 D) 10101

Q. 43) Which of the following number is a factor of  $9^{17} - 9^{13}$  ?

- A) 42 B) 41 C) 37 D) 43

Q. 44) If two non - congruent circles, with centers P and Q intersecting at two distinct points A and B, then what types of  $\square APBQ$  is formed ?

- A) Rhombus B) Square  
C) Rectangle D) Kite

Q. 45) Find the value of  $\sqrt{20 - 2\sqrt{91}} \times (\sqrt{13} + \sqrt{7})$

- A)  $2\sqrt{13}$  B)  $-2\sqrt{13}$  C)  $-\sqrt{91}$  D) 6

Q. 46) Find the sum of prime factors of 342999.

- A) 1657 B) 1680 C) 1683 D) 1685

Q.47)  $\triangle ABC$  is an isosceles triangle with base 20 cm, the altitude to the base is 24 cm. then what is the length of other altitude?

- A)  $13\frac{1}{3}$  cm B)  $18\frac{6}{13}$  cm C)  $13\frac{6}{13}$  cm D) Any Other

Q. 48) In a right angle triangle ABC,  $\angle B = 90$ . Let AC = b, AB = c and BC = a. if b and c are consecutive even integers, then what will be value of a<sup>2</sup> ? (Give answer in terms of b)

- A) 4b + 1 B) 4b + 2  
C) 4(b + 1) D) 4(b - 1)

Q. 49) If n is a natural number and  $n = 8K + 3$  form where 'K' can take any value of natural number then if n<sup>2</sup> is divided by 8, what will be remainder ?

- A) 3 B) 2 C) 0 D) 1

Q. 50) How many two digit numbers are there, each of which is 7 times the sum of its digits ?

- A) 3 B) 4 C) 5 D) 2