INSTITUTE OF MATHEMATICS EDUCATION

MATHS APTITUDE TEST – 2024 (Higher Primary Level)

Std. : VII and VIII | **Question Paper** | Date : 03.08.2024

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 $(64)^{1/3} \times (0.25)^{-1/2}$

A) 2 **B) 8** **C) 4** **D) 10**

Q.2: Find G.C.D. of $50ab^3c^2$ and $75a^2b^2c$

A) $5ab^2c$ **B)** $25a^2b^3c$

C) $25ab^2c$ **D)** $5abc$

Q.3: Find mean proportional of 0.0049 and 25.

A) 0.35 **B) 35** **C) 3.5** **D) 0.035**

Q.4: If 5% of 120% of x = 15, then x =

A) 60 **B) 2500** **C) 600** **D) 250**

Q.5: If Sell Price is 2.5 times of the Cost Price, then Profit percentage =

A) 250% **B) 150%** **C) 25%** **D) 125%**

Q.6: Simple interest on ₹ 35000 at the rate of x% per annum for 2 years is ₹ 3500. Then x =

A) 7 **B) 3.5** **C) 5** **D) 7**

Q.7: The average of 10 numbers is 20. If each number is divided by 4 and then 3 is subtracted from it, then the new average is

A) 20 **B) 2** **C) 200** **D) 0.2**

Q.8: A ship sails a distance of 1400 km between Chennai and Port Blair. It sails at 10:00 am (1st day) from Chennai and reaches Port Blair at 2:00 pm (2nd day). Find the average speed of ship in kilometer per hour.

A) 50 **B) 56** **C) 48** **D) 52**

Q.9: Vijay completes the work in 6 hours. Sunil is twice as fast as Vijay. Then working together, they will complete the work in ---- hours

A) 3 **B) 9** **C) 2** **D) 4.5**

Q.10: Find the value of $\sqrt{5\frac{44}{49}} + \sqrt[3]{3\frac{3}{8}}$

A) $\frac{44}{13}$ **B)** $\frac{55}{14}$ **C)** $\frac{22}{13}$ **D)** $\frac{19}{16}$

Q.11: The difference between the cube and square of a non zero number is equal to square of twice the number. The number is

A) 4 **B) 8** **C) 12** **D) 5**

Q.12: If $\frac{1}{a} + \frac{1}{3a} = 8$, then a = ?

A) $\frac{1}{6}$ **B)** $\frac{1}{3}$ **C)** $\frac{3}{2}$ **D)** $\frac{1}{4}$

Q.13: $\frac{103^2 - 27^2}{32^2 - 6^2} =$

A) 38 **B) 26** **C) 10** **D) 39**

Q.14: The number of isosceles triangles in which one angle is 4 times the other are

A) 0 **B) 1**

C) 2 **D) Infinite**

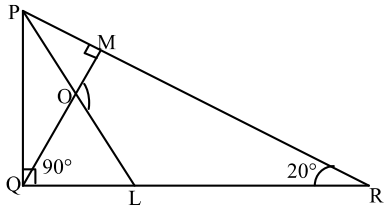
Q.15: In the given figure PL is the bisector of ∠QPR. Then ∠MOL =

A) 125°

B) 85°

C) 135°

D) 75°



Q.16: The perimeter of floor of a room is 70 m. If the ratio of length to breadth is 4:3, then the length of a diagonal of a floor is

A) 28 m **B) 25 m** **C) 30 m** **D) 35 m**

Q.17: If the ratio of diagonals of two squares is 2:5 then find the ratio of their areas.

A) 2:5 **B) 3:15** **C) 4:25** **D) 1:3**

Q.18: Find surface area of a cylinder open at the top if radius of its base is 28 cm and height is 35 cm (Use $\pi = 22/7$)

A) $8462\ cm^2$ **B)** $8264\ cm^2$

C) $8426\ cm^2$ **D)** $8624 cm^2$

Q.19: 24 children are seated equally spaced around a circle and numbered from 1 to 24. Find the number of the child who sits diametrically opposite to the child number 10.

A) 20 **B) 21** **C) 22** **D) 23**

Q.20: Find measure of each exterior angle of a regular ten sided figure.

A) 100^0 **B)** 120^0 **C)** 36^0 **D)** 48^0

Q.21: A square prism has volume equal to 31250 cm^3 and side of base is 25 cm. Then find its height.

A) 50 cm **B) 45 cm** **C) 75 cm** **D) 60 cm**

Q.22: The length of a rectangle is increased by 60%. Then by what percent the breadth should be decreased to keep area same?

A) 62.5 **B) 40** **C) 37.5** **D) 60**

Q.23: How many sides does a regular polygon have whose measure of interior angle is 160° ?

A) 15 **B) 18** **C) 16** **D) 20**

Q.24: The triangle whose sides are integers have a perimeter equal to 8 cm. Find its area.

A) $2\sqrt{2}\ cm^2$ **B)** $8\ cm^2$

C) $12\ cm^2$ **D) can't determine**

Q.25: If volume of a sphere is 38808 cm^3, then find its radius. (Use $\pi = 22/7$)
A) 44 cm B) 21 cm C) 66 cm D) 88cm

Q.26: Find L.C.M. of 0.4, 0.48, 0.04
A) 4.8 B) 3.6 C) 1.2 D) 2.4

Q.27: If a:b = 1:2 and b:c = 3:4, then a:c =
A) 3:8 B) 1:8 C) 8:3 D) 4:3

Q.28: If a% of b is 24 and b is 6 times of a, then a =
A) 144 B) 72 C) 20 D) 40

Q.29: If there is profit of 25% in a transaction, then find the ratio of sell price to cost price.
A) 5:4 B) 25:24 C) 4:5 D) 24:25

Q.30: The principal of ₹ 5000 was invested at compound interest rate of 10% for 2 years. Find the amount at the end of 2 years.
A) ₹5500 B) ₹6050 C) ₹5600 D) ₹5850

Q.31: The speed of two runners is 15 km/hr and 16 km/hr. To cover a distance of d kilometers, one takes 16 minutes more than the other. Then d = ---- km
A) 60 B) 30 C) 32 D) 64

Q.32: The positive integer n has 2,5,6 as its factors and the positive integer m has 4,8,12 as its factors. The smallest possible value of m + n is
A) 384 B) 60 C) 54 D) 444

Q.33: Find the value of $\sqrt{\left((a^{32})^{\frac{1}{8}}\right)^{\frac{1}{16}}}$
A) $a^{1/4}$ B) $a^{1/2}$ C) a D) $a^{1/8}$

Q.34: A certain number has exactly 8 factors including 1 and itself. If two of its factors are 21 and 35, then the number is
A) 105 B) 210 C) 420 D) 525

Q.35: The sum of squares of lengths of 3 sides of a right angle triangle is 800. The length of hypotenuse is
A) 40 B) 20
C) 80 D) cannot determine

Q.36: Evaluate : $\frac{(137)^2-(43)^2}{180}$
A) 94 B) 370 C) 86 D) 380

Q.37: ΔABC is a right isosceles triangle, right angled at A. Bisectors of angles B and C meet at I. Find $\angle BIC$.
A) 122.5^0 B) 135^0 C) 120^0 D) 60^0

Q.38: Two squares of side 17 cm each overlap to form a rectangle of size 17 cm × 30 cm. Find area of the overlapping part in square cm.
A) 34 B) 68 C) 60 D) 45

Q.39: $(81^{1/4} - 81^{-1/4})(81^{1/4} + 81^{-1/4})$
A) $\frac{8}{3}$ B) $\frac{80}{9}$ C) $\frac{81}{4}$ D) 0

Q.40 : If $(x + y)^2 + (x - y)^2 = 5$ and $x = \sqrt{2}$, then y =
A) 2 B) $\frac{1}{\sqrt{2}}$ C) -2 D) $\sqrt{2}$

Q.41: Daily wages of 2 persons are in the ratio 3:5. If both are paid ₹ 20 more, then ratio of their wages become 13:21. The sum of original wages of two persons is
A) ₹640 B) ₹800 C) ₹390 D) ₹420

Q.42: The average of 20 distinct natural numbers is 20. The greatest possible number among these 20 numbers is
A) 180 B) 190 C) 200 D) 210

Q.43: If x = a% of b and y = b% of a, then which option is correct?
A) x > y B) x = y
C) x < y D) can't decide

Q.44: The ratio of 2 natural numbers is 7:9. If each number is decreased by 2, then ratio becomes 3:4. The sum of numbers is
A) 23 B) 32 C) 48 D) 12

Q.45: What is the sum of digits of the smallest positive integer which is divisible by 99 and have all its digits equal to 2?
A) 36 B) 24 C) 12 D) 18

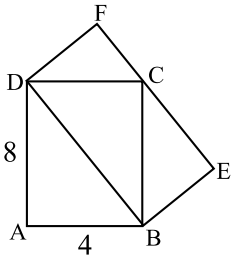
Q.46: a, b, c, d, e, f are natural numbers from group (4,5,6,12,20,24) not necessarily in same order. The maximum possible value of $\left(\frac{a}{b}\right)+\left(\frac{c}{d}\right)+\left(\frac{e}{f}\right)=$
A) 28 B) 12 C) 48 D) 24

Q.47: Two consecutive natural numbers are such that the square of their sum exceeds the sum of their squares by 112. Then the difference of their squares is
A) 15 B) 25 C) 36 D) 48

Q.48: A, B and C run a race of 1 km. When A and B run, A wins by 60 sec. When A and C run, A wins by 375 meters. When B and C run, B wins by 30 sec. If B runs 1 km in x minutes 30 sec, then x = [Assume that A, B, C run at constant speed]
A) 3 B) 2 C) 4 D) 1

Q.49: ABCD is a square and an equilateral triangle CDE is drawn inside the square. Then $\angle AEB$ =
A) 120^0 B) 140^0
C) 150^0 D) cannot determine

Q.50 : Two rectangles ABCD and DBEF are as shown. The area of rectangle DBEF is (in sq. units)
A) 32 B) 26
C) 72 D) 60



❑ ❑ ❑ ❑ ❑ ❑