



# Rao IIT Academy

Symbol of Excellence and Perfection

JEE | MEDICAL-UG | BOARDS | KVPY | NTSE | OLYMPIADS

<p>Date : 11 - 12 - 2016 Std : VIII<sup>th</sup>.</p>	<p><b>GANIT PRABHUTWA EXAMINATION</b></p>	<p>Max. Marks : 100 Max. Time : 3 hrs</p>
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Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

**General Instructions :**

- (i) The test is of **3 hours** duration. This Question Paper is of total **3 Pages**
- (ii) This paper consists of **5 Questions, each having 5 sub-questions.**
- (iii) The maximum marks are **100.**
- (iv) Each question is subjective type

**MATHS**

**Q.1 (A) Choose the correct alternative and write it against the sub question number: [10]**

- (1) □PQRS is a cyclic quadrilateral,  $m\angle P = 2x + 50$ ,  $m\angle R = 2x - 30$ , then  $m\angle R = \dots\dots\dots$   
 (A)  $40^\circ$                       (B)  $130^\circ$                       (C)  $50^\circ$                       (D) information is insufficient
- (2)  $(6.2 \times 10^{12}) \div (5 \times 10^{11}) = \dots\dots\dots$   
 (A)  $\frac{6.2}{5}$                       (B)  $\frac{62}{5}$                       (C)  $\frac{620}{5}$                       (D)  $\frac{6.2}{5} \times 10^{-1}$
- (3) If 64% of 1600 is equal to 80% of x, find x.  
 (A) 1024                      (B) 1280                      (C) 6400                      (D) 320
- (4)  $a:b=4:7$  and  $b:c=5:8$  then  $c:a = \dots\dots\dots$   
 (A) 5 : 14                      (B) 1 : 2                      (C) 2 : 1                      (D) 14 : 5
- (5) Market price of a machine is Rs.20,000 on which 15% discount is offered. What is the purchasing price of the machine?  
 (A) Rs.17000                      (B) Rs.23000                      (C) Rs.20015                      (D) Rs.19985
- (6) 60 A 18 is divisible by 3 so A can be .....  
 (A) 3 or 6                      (B) 6 or 9                      (C) 0 or 3 or 6                      (D) 0 or 3 or 6 or 9
- (7) The smallest of 5 consecutive numbers is x. What is the average of those numbers?  
 (A)  $\frac{5(x+1)}{2}$                       (B)  $\frac{x+2}{5}$                       (C)  $\frac{x+5}{5}$                       (D)  $x+2$

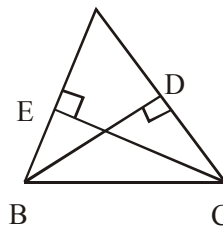
- (8)  $\sqrt{156816} = 396$ . Hence, What is the square root of  $(15.6876 \times 10^{-2})$ ?  
 (A) 3.96                      (B) 0.396                      (C) 39.6                      (D) 396
- (9) The sum of all exterior angles of a pentagon is .....  
 (A)  $360^\circ$                       (B)  $540^\circ$                       (C)  $720^\circ$                       (D)  $1080^\circ$
- (10) A circle is inscribed in a square having side 42 cm. What is the area of the circle?  
 (A)  $1764 \text{ cm}^2$                       (B)  $378 \text{ cm}^2$                       (C)  $3150 \text{ cm}^2$                       (D)  $1386 \text{ cm}^2$

**(B) Write only answer of each of the following: [10]**

- (1) The sides of a triangle are 4 cm, 4 cm,  $\sqrt{32}$  cm. What is the radius of the circumcircle of the triangle.
- (2) Insert brackets at proper places, so that the following statement is true and write the statement  
 $27 \div 9 \times 3 - 5 + 2 = 4$
- (3) The measures of angles of a quadrilateral, in order, are  $72^\circ$ ,  $72^\circ$ ,  $105^\circ$ ,  $108^\circ$ . Name the type of the quadrilateral.
- (4) In a running race the ratio of the time taken by three runners is 3 : 5 : 4. What is the ratio of their speeds?
- (5) Simple interest on a certain sum is  $\frac{9}{16}$  th of the sum. If the rate of interest is equal to the number of years, what is the rate of interest ?

**Q.2 Solve the following sub-questions: [15]**

- (1) Which expression should be added to the sum of  $(61^2 + 4p - 17)$  and  $(4p^2 - 7p + 10)$  to get  $(10p^2 - p + 11)$ ?
- (2) Factories :  $27y^3 + 8x^3$
- (3) If  $x^3 - 4x + 1 = 0$ ; Find the value of  $x^2 + \frac{1}{x^2}$
- (4) The length, breadth and height of a box are 12 cm, 9 cm, 8 cm. Find the length of the diagonal of the box.
- (5) In the adjoining figure; seg  $CE \perp$  side AB  
 seg  $BD \perp$  side AC



prove that  $\triangle ABD \sim \triangle ACE$

**Q.3 Solve the following sub-questions: [20]**

- (1) If  $a = b^{2x}$ ,  $b = c^{2y}$ ,  $c = a^{2z}$ , then find the value of  $xyz$ .
- (2) A works twice as fast as B. If B alone can complete a job in 18 days, find how many days will A and B together take to complete the same job?
- (3) Construct a segment of  $\sqrt{10}$  unit length. Hence plot the point on a number line indicating  $\sqrt{10}$ .
- (4) The difference between the circumference and the diameter of a circle is 45 cm. Find the radius of the circle  $\left(\pi = \frac{22}{7}\right)$ .

- (5) Mahadeo got a bicycle with market price of Rs. 1900, for Rs. 1805/-, Find the percentage of discount he got.

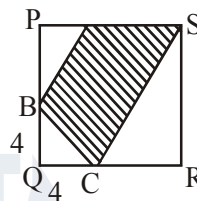
**Q.4 Solve the following sub questions. [20]**

- (1) Three numbers are such that G.C.D. and L.C.M of first two numbers is 25 and 150 respectively. GCD and LCM of second and third number is 15 and 525 respectively and GCD and LCM of first and third number is 5 and 1050 respectively. Find the numbers.

- (2) In a school 58% of the students play cricket, 38% play foot ball an 17% of the students do not play either of the two games. The number of students playing cricket and football both is 104. Find the number of students in the school.

- (3) The perimeter of a rectangle is 230 cm. If its length is decreased by 10% and its breadth is increased by 10%, the perimeter decrease by 6 cm. Find the length and breadth of the rectangle.

- (4) □PQRS is a square  
RS = 10, BQ = QC = 4  
AS = 7,



Find the area of the shaded region.

- (5) A man covered a distance of 15 km in 3 hours, partly by walking and partly by running. If he walks at 3 km/hr. Find the distance he covered by running.

**Q.5 Solve the following sub-questions: [15]**

- (1) If  $\frac{9^n \times 3^5 \times (27)^3}{3 \times (81)^4} = 27$ , find the value of n.

- (2) There were 6400 workers on the construction work of a bridge. It was decided to reduce the number of workers by 25% every year. How many workers were there after 2 years?

- (3) By which smallest number should 281216 be divided so that the quotient will be a perfect cube.

- (4) Simplify:  $\frac{x^6 - y^6}{x^4 - y^4}$

- (5) An integer is such that half of the next integer is at least 4 more than one third of the previous integer. Find the least value of the integer.