

# TS POLYCET 2024 Question Paper

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**Ques 1.  $(6 + 5\sqrt{3}) - (4 - 3\sqrt{3})$  is**

**Ans. (2) Irrational Number**

**Ques 2. Which of the following rational number have terminating decimal?**

**Ans. (1)  $7/250$**

**Ques 3. H.C.F. of 2023, 2024, 2025 is**

**Ans 3. (4) 1**

**Ques 4. The value of  $\log_6(2) + \log_6(3)$  is**

**Ans. (2) 1**

**Ques 5. Exponential form of  $\log_b(a) = c$**

**Ans . (3)  $ab = c$**

**Ques 6. The product of prime factors of 2024 is**

**Ans. (2)  $23 \times 11 \times 23$**

**Ques 7. Which of the following two sets are equal sets?**

**Ans. (3)  $A = \{5, 6, 7\}$ ,  $B = \{7, 5, 6\}$**

**Ques 8.  $\{0\}$  is a set which has \_\_\_\_\_ elements.**

**Ans. (2) 1**

**Ques 9. If  $P(x) = 11x^8 - 5x^6 + 4x^4 - 7x^2 + 6$ , then the degree of  $P(x)$  is**

**Ans. (1) 8**

**Ques 10.** If -1, -2 are two zeros of a polynomial  $2x^3 + ax^2 + bx - 2$ , then the values of a and b are

**Ans.** (3) 5, 1

**Ques 11.** If  $\alpha, \beta$  are the zeros of the polynomial  $P(x) = 3x^2 - x - 4$  then  $\alpha * \beta =$

**Ans.** (1)  $-4/3$

**Ques 12.** Which of the following equation represent the situation where Kiran bought 5 oranges, 7 apples and Harish bought 2 oranges, 12 apples for the same amount of total money?

**Ans.** (2)  $5x + 7y = 2x + 12y$

**Ques 13.** If  $2/\sqrt{x} + 3/\sqrt{y} = 2$  and  $4/\sqrt{x} - 9/\sqrt{y} = -1$ , then

**Ans.** (3)  $x = 4, y = 3$

**Ques 14.** The pair of equations  $x + y = 5$  and  $2x + 2y = k$  has infinitely many solutions if  $k =$

**Ans.** (4) 10

**Ques 15.** If  $a_1/a_2 \neq b_1/b_2$ , where  $a_1x + b_1y + c_1 = 0$  and  $a_2x + b_2y + c_2 = 0$  are two linear equations, then the equations

**Ans.** (1) have a unique solution

**Ques 16.** The value of p, for which the pair of equations  $3x + 4y + 2 = 0$  and  $9x + py + 8 = 0$  represents parallel lines, is

**Ans.** (4) 12

**Ques 17.** The roots of the quadratic equation  $x^2 - 4x + 4 = 0$  are

**Ans.** (2) 2, 2

**Ques 18.** The sum of the roots of the quadratic equation  $3x^2 - 5x + 2 = 0$  is

**Ans.** (1)  $5/3$

**Ques 19.** Sum of the areas of two squares is  $625\text{m}^2$ . If the difference of their perimeters is 20 m, find the sides of the two squares.

**Ans.** (3) 20 m, 15 m

**Ques 20.** The discriminant of the quadratic equation  $3x^2 - 2x + 1/3 = 0$  is

**Ans.** (3) 0

**Ques 21.** Which term of the A.P. 20, 18, 16, ... is '-80'?

**Ans.** (2) 51

**Ques 22.** How many two-digit numbers are divisible by 3?

**Ans.** (3) 30

**Ques 23.** In a GP, the 3rd term is 24 and the 6th is 192, then the 10th term is

**Ans.** (2) 3072

**Ques 24.** The common ratio of G. P. : 25, -5, 1, -1/5

**Ans.** (1) -1/5

**Ques 25.** The distance between the points  $(x_1, y_1)$  and  $(x_2, y_2)$  is

**Ans.** (1)  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

**Ques 26.** The coordinates of the point which divides the line segment joining the points (4, -3) and (8, 5) in the ratio 3:1 internally is

**Ans.** (2) (7, 3)

**Ques 27.** The centroid of the triangle with vertices (1,-1), (0, 6), and (-3,0) is

**Ans.** (3)  $(-2/3, 5/3)$

**Ques 28.** Area of the triangle formed by the points (-5, -1), (3, -5), and (5, 2) is

**Ans.** (1) 32

**Ques 29.** In  $\triangle ABC$ , if  $DE \parallel BC$ ,  $AE/CE = 3/5$  and  $AB = 5.6$  cm, then  $AD =$   
**Ans. (2)** 2.1 cm

**Ques 30.** In  $\triangle ABC$ ,  $DE \parallel BC$ . If  $AD = x$ ,  $DB = x - 2$ ,  $AE = x + 2$ , and  $EC = x - 1$ , then the value of  $x =$   
**Ans. (4)** 4

**Ques 31.** A girl of height 90 cm is walking away from the base of a lamppost at a speed of 120 cm/sec. If the lamppost is 360 cm above the ground, then the length of her shadow after 4 seconds is \_\_\_\_\_.  
**Ans. (3)** 160 cm

**Ques 32.** If the ratio of corresponding sides of two similar triangles is 2:3, then the ratio of areas of these triangles is \_\_\_\_\_.  
**Ans. (1)** 2:3

**Ques 33.** If  $ABC$  is a right triangle right-angled at 'C' and let  $BC = a$ ,  $CA = b$ ,  $AB = c$  and let  $p$  be the length of the perpendicular from  $C$  on  $AB$ , then \_\_\_\_\_.  
**Ans . (1)**  $cp = ab$

**Ques 34.** If the areas of two similar triangles are  $81 \text{ cm}^2$  and  $49 \text{ cm}^2$  respectively. If the altitude of the smaller triangle is 3.5 cm, then the corresponding altitude of the bigger triangle is \_\_\_\_\_.  
**Ans. (4)** 4.5 cm

**Ques 35.** A tangent to a circle touches it in \_\_\_\_\_ point(s).  
**Ans. (1)** one

**Ques 36.** There are exactly \_\_\_\_\_ tangents to a circle through a point outside the circle.  
**Ans. (1)** two

**Ques 37.** The length of the tangent from a point 15 cm away from the center of a circle of radius 9 cm is \_\_\_\_\_.

**Ans .** (4) 12 cm

**Ques 38.** If AP and AQ are the two tangents to a circle with center 'O', so that  $\angle POQ = 110^\circ$ , then  $\angle PAQ =$  \_\_\_\_\_.

**Ans .** (2)  $70^\circ$

**Ques 39.** If two concentric circles of radii 5 cm and 3 cm are drawn, then the length of the chord of the larger circle which touches the smaller circle is \_\_\_\_\_.

**Ans .** (3) 8 cm

**Ques 40.** The area of a sector, whose radius is 7 cm with the angle  $72^\circ$  is \_\_\_\_\_ . (Use  $\pi = 22/7$ )

**Ans .** (2)  $30.8 \text{ cm}^2$

**Ques 41.** If a right circular cylinder has a base radius of 14 cm and height 21 cm, then its curved surface area is \_\_\_\_\_ . (Use  $\pi = 22/7$ )

**Ans.** (3)  $3080 \text{ cm}^2$

**Ques 42.** The volume of a right circular cone with a radius of 6 cm and height 7 cm is \_\_\_\_\_ . (Use  $\pi = 22/7$ )

**Ans** (1)  $264 \text{ cm}^3$

**Ques 43.** If a cylinder and a cone have bases of equal radii and are of equal heights, then their volumes are in the ratio of \_\_\_\_\_.

**Ans.** (3) 3 : 1

**Ques 44.** If two cubes each of volume  $64 \text{ cm}^3$  are joined end to end together, then the surface area of the resulting cuboid is \_\_\_\_\_.

**Ans.** (2)  $160 \text{ cm}^2$

**Ques 45.** The value of  $\sin 215^\circ + \cos 215^\circ$  is

**Ans. (2) 1**

**Ques 46. A chord of a circle of radius 4 cm is making an angle  $60^\circ$  at the center, then the length of the chord is**

**Ans. (4) 4 cm**

**Ques 47. If  $\operatorname{cosec}\theta + \cot\theta = k$ , then the value of  $\operatorname{cosec}\theta$  is**

**Ans. (3)  $(k^2 - 1) / (k^2 + 1)$**