CLASS X
GUESS PAPER
MATHS

General instructions:

1. *This paper contains three sections A,B and C.*
2. *Sections A and B contain 20 questions each of 1 mark each. A candidate has to answer any 16 questions in each section.*
3. *Section C contains 10questions based on two case studies of which any four question in each case study should be answered.*
4. *There is no negative marking.*

Section-A

1. Decimal representation of $\frac{43}{2^3 X 5^5}$ is

a) 0.00043 b) 0.00086 c) 0.00172 d) 0.00129

2. LCM of two prime numbers is always__

a) 1 b) smaller of the two c) greater of the two d) Product of the two.

3. If a^3 =0.008 then 'a' is__

a) Irrational b) Rational c) Integer d) Whole number

4. If ab = 864 and HCF (a,b) = 12 then LCM (a,b) is__

a) 12 b) 36 c) 48 d) 72

5. If 2^{x-y} = 32 and 2^{x+y} = 128 then (x,y) is__

a) (5, 2) b) (6, 1) c) (1, 6) d) None of these

6. Two fair dice are thrown together. Total number of outcomes is__

a) 6 b) 12 c) 2 d) 36

7. If α,β are zeroes of polynomial $ax^2 + bx + c$ then $\frac{1}{\alpha} + \frac{1}{\beta}$ is__

a) $\frac{b}{a}$ b) $\frac{b}{c}$ c) $\frac{-b}{c}$ d) $\frac{-c}{a}$

8. The value of 'k' for which the system of equations 3x -2y +5 = 0 : 5x + 4y +k =0 will have unique solution___

a) 5 b) – 10 c) 10 d) any real number.

9. If cot θ = $\frac{4}{3}$, then $\text{cosec}^2\theta$ is ___

a) $\frac{3}{5}$ b) $\frac{5}{3}$ c) $\frac{9}{5}$ d) $\frac{25}{9}$

10. Value of $\cos^2 35^\circ + \cos^2 55^\circ - 1$ is ___

a) 1 b) 2 c) - 1 d) 0

11. A bag contains blue, red and green balls.The probability of drawing red and blue balls are 0.6 and 0.03 respectively. The probability of drawing green ball is ___

a) 0.1 b) 0.35 c) 0.37 d) 0.33

12. $\frac{tan^2A}{cot^2A}$ =___

a) 1 b) – 1 c) $\tan^4A$ d) $\cot^4A$

13. The distance between the points (a,0) and (0, b) is _____
a) $a^2 + b^2$ b) $a^2 - b^2$ c) $\sqrt{a^2 + b^2}$ d) $\sqrt{a^2 - b^2}$

14. ABC is a triangle right angled at A and AD $\perp$ BC. If AD = BD=4 cm, then CD = __
a) 4 cm b) 8 cm c) 16 cm d) none of these.

15. If sin (30° + θ) = cosθ, then the measure of θ is ___
a) 60° b) 30° c) 90° d) 45°

16. The area of the region between two concentric circles of radius 5 cm and 3 cm respectively is ___
a) 16π cm^2 b) 4π cm^2 c) 34π cm^2 d) None of these

17. A person walks 150 m due east from his house and then turning left walks another 80 m. His distance from his house is ____
a) 230 m b) 170 m c) 90 m d) 70 m

18. Areas of two similar triangles are 121 cm^2 and 81 cm^2 respectivley. If the altitude of the smaller triangle is 9 cm, altitude of the larger triangle is ___
a) 11 cm b) 9 cm c) 10 cm d) 12 cm.

19. Area of the minor segment formed by a quadrant of a circle of radius 7 cm is ___
a) 14 cm^2 b) 49 cm^2 c) 21 cm^2 d) 7 cm^2

20. In ΔABC, DE ║ BC. If AD = 2.5 cm, AB = 7.5 cm and EC = 6 cm then AC = ___
a) 7 cm b) 8 cm c) 9 cm d) 10 cm.

Section- B

21. Sum of two numbers is 120, their HCF is 24. How many such pairs of numbers exist?
a) 1 b) 2 c) 3 4) 5

22. The smallest number that leaves remainders 1,2 and 3 respectively when divided by 2,3 and 4 but completely divisible by 5 is _
a) 65 b) 55 c) 75 d) 45

23. The greatest number that divides 124, 165 and 288 leaving remainder 1 in each case is___
a) 23 b) 31 c) 41 d) 54

24. A father's age is four times the sum of the ages of his two children. Five years hence his age will be 2 ¼ times the sum of the ages of children then. Father's present age is ___
a) 32 years b) 40 years c) 60 years d) 44 years

25. The zeroes of the polynomial $17x^2 – 30x – 8$ will ____
a) Both be negative b) both positive c) bigger of the two positive d) bigger of the two negative.

26. If the system of equations 2x + 3y =7 ; (k – 2)x + (k+1)y = 8 then _____
a) K = 8 b) k ǂ 8 c) k = 6 d) k ǂ 4

27. If α,β are zeroes of polynomial $ax^2 + bx + c$, the α–β is
a) $\frac{b}{a}$ b) $\frac{bc}{a}$ c) $\frac{\sqrt{b^2-4ac}}{a}$ d) $\frac{\sqrt{b^2+4ac}}{a}$

28. A line joining A(4, 6) and B (7, –6) is trisected at P and Q. If P is nearer to A then co-ordinates of P are __
a) (2, 5) b) (5, 2) c) (6,0) d) None of these

29. The point on the x-axis which is equidistant from points A(2, –5) and B(–2,9) is_
a) (0, 7) b) (7, 0) c) (–7, 0) d) (0,–7)

30. A BCD is a rectangle whose three vertices are A(0, 3), B(0, 0) and C (5, 0). The length of its diagonal is __
a) 5 units b) 3 units c) $\sqrt{34}$ units d) 4 units.

31. If S is point on side PQ of ΔPQR such that PS = QS = RS then__
a) $RS^2 = PR.QR$ b) $QS^2 + RS^2 = QR^2$ c) $PR^2 + QR^2 = PQ^2$ d) $PS^2 + PR^2 = PR^2$

32. If 2sin 3x = $\sqrt{3}$, then x =___
a) 30° b) 60° c) 20° d) 10°

33. If sin 5θ = cos 4θ, both 5θ and 4θ being acute angles then value of 2sin3θ–$\sqrt{3}$tan3θ is___
a) 1 b) 2 c) 0 d) 1 +$\sqrt{3}$

34. If cos (α +β) = 0, then sin (α–β) can be reduced to____
a) Cosβ b) cos2β c) sinα d) sin 2α

35. In triangles ABC and DEF $\frac{AB}{DE} = \frac{BC}{FD}$, then the triangles will be similar if___
a) ∟B = ∟E b) ∟A = ∟D c) ∟B = ∟D d) ∟A =∟F

36. Area of the largest triangle hat can be inscribed in a semicircle is ___
a) r^2 sq.units b) ½ r^2 sq.units c) $\sqrt{2}$ r^2 sq.units d)$2r^2$ Sq.units

37. Probability expressed as percentage of a particular occrence can never be__

a) Less than 100 b) less than 0 c) greater than 1 d)anything but a whole number.

38. Cards are marked 1 – 100. One card is picked at random. Probability of that bearing a prime number is ____

a) ¼ b) $\frac{13}{50}$ c) $\frac{6}{25}$ d) $\frac{1}{5}$

39. Area of a square that can be inscribed in a circle of radius 8cm is _____

a) 256 cm^2 b) 128 cm^2 c) $64\sqrt{2}$ cm^2 d) 64 cm^2

40. Area of the minor segment of a circle of radius 'r' cm and central angle 120^o is_

a) $\left(\frac{\pi}{3}-\frac{\sqrt{3}}{4}\right)r^2$ b) $\left(\frac{\pi}{3}-\frac{\sqrt{3}}{2}\right)r^2$ c)$2\left(\frac{\pi}{3}-\frac{\sqrt{3}}{4}\right)r^2$ d) None of these

Section-C

Case study 1:- A farmer has a whose vertices are (–4, 3), (–5, –4) and (3, 2). Answer the following questions.

41. The perimeter of the field is _____
a) $20\sqrt{2}$ units b) $10\sqrt{2}$ units c) $10(\sqrt{2} + 1)$ units d) none of these.

42. The field is in the shape of ______ triangle.
a) Isosceles b) Right c) Scalene d) none of these.

43. The centroid G divides the median in the ratio 2 :1 . Then its coordinates are_
a) (–2, 1) b) (–2, ⅓) c) (2, –1) d) (2, ⅓)

44. The length of the longest side is __
a) 10 unit b) $5\sqrt{2}$ units c) $10\sqrt{2}$ units d) None of these.

45. The length of the median to the longest side is ___
a) $5\sqrt{2}$ units b) 5 units c) 6 units d) None of these.

Case study 2:- Zero of a polynomial is the value of the variable for which the expression becomes equal to zero. The number of zeros is generally equal to the degree of the polynomial. If α,β are zeroes of a quadratic polynomial the polynomial can be obtained by using the formula $x^2-(\alpha+\beta)x+\alpha\beta$.

46. If 2 is a zero of the polynomial $7x^2 + px - 10$, then p =__
a) 9 b).–9 c) 3 d)–3

47. If α,β are the zeroes of polynomial $2x^2 + 5x + k$ such that $\alpha^2 + \beta^2 + \alpha\beta = \frac{1}{4}$, k =_
a) 2 b) 6 c) 12 d)–12

48. The polynomial whose zeroes are –7 and –5 is____

a) $X^2 - 12x + 35$ b) $x^2 + 12x + 35$ c) $x^2 - 12x - 35$ d) $x^2 - 12x - 35$

49. If one of the zeroes of the polynomial $ax^3 + bx^2 + cx + d$ is ZERO, the product of the other two zeroes is given by ___

a) $\frac{-b}{a}$ b) $\frac{b}{a}$ c) $\frac{c}{a}$ d) $\frac{-d}{a}$

50. If α,β are zeroes of the polynomial $ax^2 + bx + c$ then value of $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}$ is_

a) $\frac{3abc - b^3}{a^2c}$ b) $\frac{3abc + b^3}{a^2c}$ c) $\frac{3abc - b^3}{a^3c}$ d) None of these