1. Let $x = \frac{7}{20 \times 25}$ be a rational number. Then x has decimal expansion, which terminates :

   (a) after two places of decimal (b) after three places of decimal

   (c) after four places of decimal (d) after six places of decimal

2. The decimal expansion of $\frac{63}{72 \times 175}$ is

   (a) terminating (b) non-terminating

   (c) non termination and repeating (d) an irrational number

3. If HCF and LCM of two numbers are 4 and 9696 respectively, then the product of the two numbers is :

   (a) 38924 (b) 78385 (c) 28785 (d) 38784

4. If a and b are positive integers, then HCF $(a, b) \times LCM(a,b) =$

   (a) $a \times b$ (b) $a^2 b$ (c) $a + b$ (d) $a \div b$

5. If the HCF of two numbers is 1, then the two numbers are called :

   (a) composite (b) relatively prime or co-prime

   (c) perfect (d) irrational numbers

6. If α, β are the zeroes of the polynomials $f(x) = x^2 + x + 1$, then $\frac{1}{\alpha} + \frac{1}{\beta}$ is :

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

7. A quadratic polynomial whose sum and product of zeroes are – 3 and 2 is

   (a) $x^2 - 3x + 2$ (b) $x^2 + 3x + 2$ (c) $x^2 + 2x - 3$ (d) $x^2 + 2x + 3$

8. If α and β are the zeroes of the polynomial $px^2 - 2x + 3p$ and $\alpha + \beta = \alpha\beta$, then p =

   (a) $\frac{3}{2}$ (b) $\frac{2}{3}$ (c) 3 (d) 2

9. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is

   (a) 12 (b) -10 (c) 15 (d) 5

10. If $19x-17y=55$ and $17x-19y=53$, then the value of $x-y$ is

(a) 1 (b) -3 (c) 3 (d) 5

11. If $\frac{2}{x}+\frac{3}{y}=13$ and $\frac{5}{x}-\frac{4}{y}=-2$, then $x+y$ equals

(a) $\frac{1}{6}$ (b) $-\frac{1}{6}$ (c) $\frac{5}{6}$ (d) $-\frac{5}{6}$

12. If the system of equations $2x+3y=5$, $4x+ky=10$ has infinitely many solution, then k =

(a) 3 (b) 6 (c) 5 (d) 8

13. If the system of equations $kx-5y=2$, $6x+2y=7$ has no solution, then k =

(a) -10 (b) -5 (c) – 6 (d) -15

14. The pair of equations $x+2y+5=0$ and $-3x-6y+1=0$ have

(a) a unique solution (b) exactly two solutions

(c) infinitely many solutions (d) no solution

15. If a pair of linear equations is consistent, then the lines will be

(a) parallel (b) always coincident

(c) intersecting or coincident (d) always intersecting

16. If in two triangles ABC and PQR, $\frac{AB}{QR}=\frac{BC}{PR}=\frac{CA}{PQ}$, then :

(a) $\Delta PQR \sim \Delta CAB$ (b) $\Delta PQR \sim \Delta ABC$ (c) $\Delta CBA \sim \Delta PQR$ (d) $\Delta BCA \sim \Delta PQR$

17. In a ΔABC, AD is the bisector of $\angle BAC$. If AB = 6 cm, AC = 5 cm and BD = 3cm, then DC =

(a) 11.3 cm (b) 2.5 cm (c) 3.5 cm (d) 4 : 5 cm

18. If ΔABC is an equilateral triangle such that $AD \perp BC$, then $AD^2 =$

(a) $\frac{3}{2}DC^2$ (b) $4DC^2$ (c) $3CD^2$ (d) $2CD^2$

19. A ladder is placed against a wall such that its food is at distance of 2.5 m from the wall and its top reaches a window 6 cm above the ground. The length of the ladder is

(a) 9.5 m (b) 7.5 m (c) 8.5 m (d) 6.5 m

20. The lengths of the diagonals of a rhombus are 6 cm and 8 cm. Then the perimeter of the rhombus is

(a) 5 cm (b) 10 cm (c) 15 cm (d) 20 cm

21. A vertical stick 30 m long casts a shadow 15 m long on the ground. At the same time a tower casts a shadow 75 m long on the ground. The height of the tower is

(a) 150 m (b) 130 m (c) 125 m (d) 120 m

22. If ABC and DEF are similar triangles such that $\angle A = 47°$ and $\angle E = 83°$, then $\angle C =$

(a) 50° (b) 40° (c) 60° (d) 70°

23. The fourth vertex D of a parallelogram ABCD whose three vertices are $A(-2,3), B(6,7)$ and $C(8,3)$ is

(a) (0, 1) (b) (0, -1) (c) (-1, 0) (d) (1, 0)

24. If the distance between the points (8, p) and (4, 3) is 5, then value of p is

(a) 6 (b) 3 (c) 5 (d) -6

25. The point P(1, 2) divides the join of $A(-2,1)$ and $B(7,4)$ in the ratio is

(a) 3 : 2 (b) 2 : 3 (c) 2 : 1 (d) 1 : 2

26. If $A(5,1), B(1,5)$ and $C(-3,-1)$ are the vertices of ΔABC, then length of median AD is

(a) $\sqrt{35}$ units (b) $\sqrt{37}$ units (c) $\sqrt{33}$ units (d) $\sqrt{31}$ units

27. The distance between the points $A(2a, 6a)$ and $B\left(2a+\sqrt{3a}, 5a\right)$ is

(a) a (b) 2a (c) 3a (d) 4a

28. The distance between the points (a, b) and $(-a,-b)$ is :

(a) 2ab (b) $2(a+b)$ (c) $2\sqrt{a^2+b^2}$ (d) $2\sqrt{a+b}$

29. If $\sin A + \sin^2 A = 1$, then the value of the expression $\left(\cos^2 A + \cos^4 A\right)$ is

(a) 1 (b) $\frac{1}{2}$ (c) 2 (d) 3

30. If $\sec\theta+\tan\theta=m$, then $\tan\theta$ is equal to

(a) $\frac{m^2-1}{2m}$ (b) $\frac{m^2+1}{2m}$ (c) $\frac{m^2-1}{m}$ (d) $\frac{m^2+1}{m}$

31. $\frac{\sin\theta}{1+\cos\theta}$ is equal to

(a) $\frac{1+\cos\theta}{\sin\theta}$ (b) $\frac{1-\cos\theta}{\sin\theta}$ (c) $\frac{1+\cos^2\theta}{\sin\theta}$ (d) $\frac{1-\sin^2\theta}{\sin\theta}$

32. If triangle ABC is right angled at C, then the value of $\sec(A+B)$ is

(a) 0 (b) 1 (c) $\frac{2}{\sqrt{3}}$ (d) not defined

33. $\sin2A=2\sin A\cos A$ is true when A =

(a) 30° (b) 45° (c) 90° (d) any angle

34. If $\sin A=\frac{1}{2}$, then the value of $3\cos A-4\cos^3 A$ is

(a) 0 (b) 1 (c) -1 (d) $\frac{3}{2}$

35. If $a\cot\theta+b\operatorname{cosec}\theta=p$ and $b\cot\theta+a\operatorname{cosec}\theta=q$, then $p^2-q^2=$

(a) a^2-b^2 (b) b^2-a^2 (c) a^2+b^2 (d) b+a

36. If $x=a\cos\theta$ and $y=b\sin\theta$, then $b^2x^2+a^2y^2=$

(a) a^2b^2 (b) a+b (c) a^4+b^4 (d) a^2+b^2

37. $(1+\tan^2\theta)(1-\sin\theta)(1+\sin\theta)=$

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

38. $\sqrt{\frac{\sec\theta-1}{\sec\theta+1}}+\sqrt{\frac{\sec\theta+1}{\sec\theta-1}}=$

(a) $2\sin\theta$ (b) $2\operatorname{cosec}\theta$ (c) $2\tan\theta$ (d) $2\sec\theta$

39. If the circumference and the area of circle are numerically equal, then diameter of the circle is

(a) 2 (b) 4 (c) $\frac{\pi}{2}$ (d) 2π

40. If the length of minute hand of a watch is $\sqrt{7}$ cm, then the area swept by it between 9 a.m. to 9 : 10 a.m. is

(a) $3cm^2$ (b) $3.5cm^2$ (c) $3.6cm^2$ (d) $4.2cm^2$

41. If an arc subtends an angle of 45° at the centre of the circle of radius a cm, then length of the arc is

(a) $\frac{\pi}{6}$a cm (b) $\frac{\pi}{3}$a cm (c) $\frac{\pi}{4}$a cm (d) $\frac{\pi}{2}$a cm

42. If the circumference of a circle is equal to the perimeter of a square, then the ratio of their areas is

(a) 22 : 7 (b) 14 : 11 (c) 7 : 22 (d) 7 : 11

43. The area of the circle that can be inscribed in a square of side 6 cm is

(a) $36\pi cm^2$ (b) $18\pi cm^2$ (c) $12\pi cm^2$ (d) $9\pi cm^2$

44. The angle subtended by an arc of length 4π cm at the centre of the circle of radius 4 cm is

(a) 30° (b) 45° (c) 60° (d) 90°

45. A card is drawn from a pack of 52 playing cards. The probability that it is a queen is

(a) $\frac{1}{10}$ (b) $\frac{1}{26}$ (b) $\frac{1}{13}$ (d) $\frac{12}{13}$

46. Two dice are thrown simultaneously. The probability of getting a prime number on both dice is

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{1}{6}$

47. The probability of drawing a green coloured ball from a bag containing 6 red and 5 black balls is

(a) 1 (b) 0 (c) $\frac{1}{11}$ (d) $\frac{5}{11}$

48. The probability of guessing the correct answer to a question is $\frac{p}{12}$. If the probability of not guessing the correct answer the same question is $\frac{3}{4}$, then the value of p is

(a) 1 (b) 2 (c) 3 (d) 4

49. A dice is thrown once. The probability of getting a number less than 3 and greater than 2 is

(a) 1 (b) $\frac{1}{2}$ (c) $\frac{1}{6}$ (d) 0

50. A card is drawn at random from an ordinary pack of 52 playing cards. The probability that the card is a black king is

(a) $\frac{1}{52}$ (b) $\frac{1}{26}$ (c) $\frac{1}{13}$ (d) $\frac{12}{13}$

51. Which of the following is not a polynomial ?

(a) $3x^3+x^2+x+7$ (b) x^2+px+q

(c) $x^2+\frac{1}{x^2}+7$ (d) $2x^3+3x^2-5x-6$

52. Which of the following is a polynomial.

(a) $x^2+\frac{1}{x}$ (b) $2x^2-3\sqrt{x}+1$ (c) $3x^3+x^2+x^2-7$ (d) $3x^2-3x+1$

53. The degree of the polynomial x^3+x+7 is :

(a) 2 (b) 3 (c) 1 (d) Not known

54. If α,β be the zeros of the quadratic polynomial $2x^2+5x+1$, then value of $\alpha+\beta+\alpha\beta=$

(a) -2 (b) -1 (c) 1 (d) None of these

55. If α,β be the zeros of the quadratic polynomial $2-3x-x^2$, then $\alpha+\beta=$

(a) 2 (b) 3 (c) 1 (d) None of these

56. A quadratic polynomial, whose zeros are -3 and 4, is

(a) x^2-x+12 (b) x^2+x+12 (c) $\frac{x^2}{2}-\frac{x}{2}-6$ (d) $2x^2+2x-24$

57. A real number α is called a zero of the polynomial f(x) if

(a) $f(\alpha)=-1$ (b) $f(\alpha)=1$ (c) $f(\alpha)=0$ (d) None of these

58. If the sum of the zeros of the quadratic polynomial $3x^2-kx+6$ is 3, then the value of k is

(a) 9 (b) 3 (c) -3 (d) 6

59. The quadratic polynomial, sum and product of whose zeros are respectively -1 and – 12 is

(a) x^2+x-12 (b) x^2-x-12 (c) $x^2-12x+1$ (d) $x^2-12x-1$

60. Given that one of the zeros of the cubic polynomial ax^3+bx^2+cx+d is zero, the product of the other two zeros is

(a) $-\frac{c}{a}$ (b) $\frac{c}{a}$ (c) 0 (d) $-\frac{b}{a}$

61. ΔABC and ΔPQR are similar triangles such that $\angle A=32^0$ and $\angle R=65^0$ then $\angle B$ is

(a) 83^0 (b) 32^0 (c) 65^0 (d) 97^0

62. If $\Delta ABC\cong\Delta DEF, \angle A=47^0, \angle E=83^0$, the value of $\angle C$

(a) 47^0 (b) 30^0 (c) 40^0 (d) 50^0

63. If $\Delta ABC\cong\Delta RQP, \angle A=80^0, \angle B=60^0$, the value of $\angle P$ is.

(a) 60^0 (b) 50^0 (c) 40^0 (d) 30^0

64. If $\Delta ABC\sim\Delta DEF, BC=4cm, EF=5cm$ and $ar(\Delta ABC)=80cm^2$, the $ar(\Delta DEF)$ is

(a) 100 cm^2 (b) 125cm^2 (c) 150 cm^2 (d) 200 cm^2

65. ABC and DEF are similar triangles such that $\angle A=47^0$ and $\angle E=83^0$, then $\angle C$ is.

(a)60^0 (b) 70^0 (c) 50^0 (d) 80^0

66. $\Delta ABC\sim\Delta PQR$. M is the midpoint of BC and N is the midpoint of QR. If the area of $\Delta ABC=100sq.cm$ and the area of $\Delta PQR=144sq.cm.$ If AM = 4 cm then PN is

(a)4.8 cm (b) 12 cm (c) 4 cm (d) 5.6 cm

67. If a vertical pole of length 6 cm casts a shadow 4m long on the ground and at the same time a tower casts a shadow 28 m long, then the height of the tower is.

(a)42 m (b) 21 m (c) 12 m (d) 45 m

68. $\Delta ABC \sim \Delta PQR$. If $\text{ar}(ABC) = 2.25\text{m}^2\ \text{ar}(PQR) = 6.25\text{m}^2, PQ = 0.5\text{m}$ then length of AB is

a) 30 cm (b) 0.5 m (c) 50 cm (d) 3 m

69. If $x = 3\sec^2\theta - 1,\ y = \tan^2\theta - 2$ then $x - 3y$ is equal to

(a) 3 (b) 4 (c) 8 (d) 5

70. If $\cos\theta + \cos^2\theta = 1$, the value of $(\sin^2\theta + \sin^4\theta)$ is

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