Pavzi Media

Polycet - 2016

English Medium

Model Paper for Mathematics

1. 1 is a (an)

1) Natural number but not a real number
2) Integer and also an irrational number
3) **Rational number as well as a real number**
4) Real number but not a whole number

2. Among the following, neither a prime number nor a composite number is

1) 0
2) 2
3) 3
4) **1**

3. Every integer is a (an)

1) Natural number
2) Whole number
3) Irrational number
4) **Real number**

4. The 4^{th} power of 3 is

1) **81**
2) 9
3) 27
4) 243

5. A rational number in the following is

1) π
2) e
3) $\log_3 2$
4) **22/7**

6. A rational number that does not lie between 0 and 1 is

1) 1/2
2) 2/3
3) 3/4
4) **4/3**

7. The decimal expansion of 0.225 in its rational form is

1) 225
2) $225/10^4$
3) $225/10^2$

4) 9/40

9. Between any two natural numbers there exist infinitely many

1) Natural numbers
2) Whole numbers
3) Integers
4) Real numbers

10. The number of prime factors of 72 is

1) 12
2) 2
3) 3
4) 6

11. How many prime factors are there in the prime factorization of 240?

1) 20
2) 5
3) 3
4) 6

12. 0.12112111211112 ..... is

1) Irrational number
2) Rational number
3) Composite number
4) Prime number

13. A composite number among the following

1) 1
2) 2
3) 3
4) 4

14. Among the following constitutes "well defined objects" is

1) Beautiful girls
2) Good news papers
3) Tall boys
4) Orange trees in the garden

15. Set theory was proposed by

1) Cantor
2) Boolae
3) Pythagoras
4) Newton

16. Generally set is defined by the following letter.

1) x
2) q
3) X
4) m

17. W – {0}

1) N
2) C
3) R
4) Q

18. The set formed from the letters of the word "SCHOOL" is

1) {S, C, H, O, O, L}
2) {S, C, H, L}
3) {S, C, H, O, L}
4) None

19. ∅ ±

1) ∀
2) ∃
3) **µ**
4) ∅

20. Maximum number of elements in a single ton set is

1) 0
2) 8

3) 1
4) 4

21. If l and m are two straight lines such that l ∩ m = ∅, then l and m are ..... lines.

1) Parallel
2) Perpendicular
3) Intersecting
4) Same

22. Identify monomial.

1) $x^2 - 2$
2) $x + 2$
3) 2x
4) None

23. Maximum number of terms in binomial is

1) 1
2) 3
3) 4
4) 2

24. 4x + 2 is a

1) Linear polynomial
2) Quadratic polynomial
3) Cubic polynomial
4) Biquadratic polynomial

25. A polynomial of degree three is called

1) A linear polynomial
2) A quadratic polynomial
3) A cubic polynomial
4) A biquadratic polynomial

26. The vertex of the parabola $y = mx^2$ is

1) (0, m)
2) (m, 0)
3) (m, m)
4) (0, 0)

27. The graph of $x = y^2$ lies in the quadrants.....

1) Q_1, Q_2
2) Q_1, Q_3
3) Q_2, Q_4
4) Q_1, Q_4

28. When $4x^2 - 8x + 3$ is divided by ....., the remainder is 24.

1) 2x + 1
2) 2x – 1
3) 2x + 3
4) 2x – 3

29. Condition of one root of $ax^2 + bx + c = 0$ to be the reciprocal of the other is

1) b + c = 0
2) a = c
3) a + c = b
4) a + b + c = 0

30. If p and q are unequal and $x^2 + px + q$ and $x^2 + qx + p$ have a common factor, then

1) p – q + 1 = 0
2) p + q + 1 = 0
3) p + q – 1 = 0
4) p – q – 1 = 0

31. Which of the following equations is not a linear equation?

1) 5 + 4x = y + 3
2) x + 2y = y – x
3) $3 - x = y^2 + 4$
4) x + y = 0

32. Identify open sentence.

1) **x + y = 7**
2) 3x
3) x/12
4) None

33. If ax + b = 0 then x =

1) -a
2) a
3) b/a
4) **-b/a**

34. x = 2 and y = 1 is a solution to

1) **3x – 2y = 4**
2) 6x – 4y = 7
3) x + y = 1
4) None

35. If a pair of linear equations in two variables is consistent, then the lines represented by two equations are

1) Intersecting
2) Parallel
3) Always coincident
4) **Intersecting or coincident**

36. If 29x + 41y = 169 and 41x + 29y = 181then x =

1) -3
2) 2
3) **3**
4) -2

37. If x – y = 1 and 2x + y = 8 then y =

1) **2**
2) -2
3) 3
4) -3

38. If $5x^2 – kx + 11 = 0$ has a root x = 3, then k =

1) 16/3
2) **56/3**
3) -17/3
4) 15

39. The roots of $5x^2 – x + 1 = 0$ are

1) Real and equal
2) Real and unequal
3) **Imaginary**
4) None

40. If the equation $x^2 – kx + 1 = 0$ has equal roots, then

1) k = 1
2) k = -1
3) **k = 2**
4) k = -4

41. The nature of the roots of quadratic equation $3x^2 + x + 8 = 0$ is .....

1) Real and distinct
2) Real and equal
3) **Imaginary**
4) None

42. Sum of the roots of $ax^2 + bx + c = 0$ is

1) c/a
2) b/a
3) a/b
4) **None**

43. Product of the roots of $ax^2 + bx + c = 0$ is

1) **c/a**

2) -b/a
3) -c/a
4) None

44. The largest number which divides 77, 147 and 252 to leave the same remainder in each case is.....

1) 25
2) 35
3) 9
4) 15

45. If K + 2, 4k – 6 and 3k – 2 are the consecutive term of an arithmetic progression, then K=

1) 3
2) 0
3) 2
4) 1

46. 51 + 52 + 53 + ...100 =

1) 1275
2) 6325
3) 5050
4) 3775

47. If a, b, c are in A.P. ..... are in G.P.

1) a^a, b^b, c^c
2) a^c, b^a, c^b
3) a^b, b^c, c^a
4) a^a, a^b, a^c

48. If the sum of the first 15 terms and the sum of the first 10 terms of an arithmetic progression are -15 and 5 respectively, the sum of the first 5 terms is

1) 20
2) -20
3) -10
4) 10

49. The general term of the series x – 5a, x – 2a, x + a, x + 4a..... is

1) x – 8a
2) x + 3 (n – 8/3) a
3) x + 3(n – 1) a
4) x + 3na – 2a

50. Pair of perpendicular lines among the following is :

1) 2x + 3y = 5 ; 3x – 2y = 9
2) 2x + 3y = 5 ; -3x – 2y = 9
3) 2x + 3y = 5 ; 2x + 3y = 9
4) 2x + 3y = 5 ; 3x + 2y = 9

51. The point R (4, 24) divides the line segment P (2, 27), Q(10, 15) in the ratio.....

1) 4:1
2) 3:2
3) 2:3
4) 1:3

52. The slope of perpendicular to the line 5x – 3y + 4 = 0 is

1) 3/5
2) -3/5
3) -5/3
4) 5/3

53. The points A (- 4, - 1) , B (- 2, - 4), C (4, 0) and D (2, 3) are the vertices of .....

1) Parallelogram
2) Rectangle
3) Rhombus
4) Square

54. The area of the triangle whose vertices are (1, 3), (2, 4) and (5, 6)

1) -1/2
2) 1/2
3) 2
4) 1/3

55. Two vertices of vertices of a triangle are (-4, 6), (2, -2). If its centre of gravity (G) is (0,3) its third vertex is

1) (4, -6)
2) (-2, 2)
3) (-2, 5)
4) (2, 5)

56. Among the following the similar figures are

1) Squares
2) Circles
3) Equilateral triangles
4) All

57. Two figures are said to be similar if they have same

1) Point
2) Shape
3) Size
4) None

58. The ratio of the corresponding sides of two similar triangles is 5 : 3. Then the ratio of their areas is

1) 5 : 3
2) 3 : 5
3) 6 : 10
4) 25 : 9

59. Basic proportionality theorem is also known as.....theorem.

1) Thale's
2) Coordinate
3) Similar
4) None

60. 36^0 is.....angle.

1) Obtuse
2) Reflex
3) Straight
4) Acute

61. If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar, the property is

1) AAA
2) SSS
3) SAS
4) None

62. Number of chords of a circle is

1) 10
2) 19
3) 2015
4) Infinite

63. Angle in a semicircle is

1) 90^0
2) 60^0
3) 70^0
4) None

64. Area of circle is.....sq. units.

1) πr
2) πr^2
3) $\pi + r$
4) r/π

65. If a parallelogram is cyclic, then it is

1) A rectangle
2) A quadrilateral

3) A rhombus
4) A square

66. If a trapezium is cyclic, then

1) Its parallel sides are equal
2) Its non-parallel sides are equal
3) Its diagonals are not equal
4) None of the above

67. The angles subtended by major arc at the centre is

1) $< 90^0$
2) $> 90^0$
3) $< 180^0$
4) $> 180^0$

68. If the radii of a circle is doubled, then its area becomes.....times.

1) 2
2) 3
3) 4
4) 5

69. If the radii of two spheres is 2 : 3, then the ratio of their surface areas is

1) 3 : 2
2) 27 : 8
3) 8 : 27
4) 4 : 9

70. The surface area of a sphere of radius 14cms in sq.cms is

1) 1464
2) 2464
3) 3464
4) 4464

71. If the edge of a cube is doubled, then the new volume will be

1) 2 times
2) 3 times
3) 4 times
4) 8 times

72. The volume of a cone is 462 cm^3, base radius is 7 cm, then h =

1) 9 cm
2) 8 cm
3) 7 cm
4) 6 cm

73. A cube of a metal of 5 cm edge is melted and casted into a cuboid whose base is 2.5 cm * 0.5 m, then height of the cuboid is

1) 100 cm
2) 10 cm
3) 1000 cm
4) 10000 cm

74. A cone and a hemisphere have equal bases and equal volumes. Then the ratio of their heights is

1) 1 : 2
2) 3 : 1
3) 1 : 3
4) 2 : 1

75. Sec (90 + θ) =

1) -sec θ
2) cosec θ
3) sec θ
4) -cosec θ

76. If A, B are acute angles such that sin A = cos B, A + b =.....

1) $\pi/2$
2) $\pi/4$
3) π

4) $\pi/3$

77. The minutes hand of a clock is 3 cm long. How far does its tip move in 29 minutes?

1) 9 cm
2) 10 cm
3) 22 cm
4) 44/7 cm

78. Sin 110^0 =.....

1) Sin 20^0
2) Sin -20^0
3) Sin 70^0
4) Cos 70^0

79. Cos 1^0. Cos 2^0. Cos 3^0..... Cos 30^0..... Cos 93^0 =

1) 0
2) 1
3) $\sqrt{3}$
4) 1/2

80. 1 radian =

1) 56^0 18'
2) 57^0 16'
3) 56^0 15'
4) 45^0 40'

81. A ladder 19mts leaning to wall at 60^0, with ground, the distance from foot to the wall is

1) 18 m
2) 19 m
3) 9 m
4) 9.5 m

82. A kite is flying in the sky with a thread of 68mts and making an angle 0^0. If tan θ = 15/8, then find the height of the kite above the ground (mts)

1) 50
2) 60
3) 70
4) 80

83. The tops of two poles of heights 20 m and 14 m are connected by a wire. If the wire makes an angle of 30^0 with the horizontal, the length of the wire in metres in between two poles is

1) 8
2) 10
3) 12
4) 14

84. From the top of a minar of height 60 mts, the top and bottom of a clock tower are observed at the angles of depression of 30^0 and 60^0 respectively. Then the height of the clock tower in metres is

1) 40
2) 50
3) 60
4) 20

85. The angle of elevation of the top of the tower from a point 60 m from its foot is 30^0. The height of the tower is

1) $30\sqrt{3}$ m
2) 30 m
3) 60 m
4) $20\sqrt{3}$ m

86. Two fair dice are rolled and the face values are added. The probability of getting an odd number greater than 8 is.....

1) 2/9
2) 1/6
3) 1/4

4) 1/9

87. If a coin is tossed 1000 times getting head 455 times and getting tail 545 times, then the probability of getting a head is

1) 0.455
2) 0.545
3) 1
4) 0.5

88. The probability of getting even number is

1) 150/1000
2) 489/1000
3) 190/1000
4) 200/1000

89. The probability that a leap year contains 53 Sundays or 53 Mondays is

1) 4/7
2) 1/7
3) 3/7
4) 2/7

90. A digit is randomly taken from a logarithmic table. Then the probability that the digit is 0 or 9 is

1) 1/9
2) 1/10
3) 1/5
4) 2/5

91. Ten cards numbered 1, 2, 3, ...10 are kept in a box. If a card is taken at random, then the probability that the card drawn is a prime number is

1) 2/5
2) 1/5
3) 3/5
4) 4/5

92. Likes Statistics =

1) 9/40
2) 27/40
3) 18/40
4) 36/40

93. One number is selected from the four digit numbers that can be formed from the digits 1, 2, 3, 4, 5, 6, 7. The probability that it is divisible by 5 is

1) 4/7
2) 2/5
3) 7/16
4) 1/16

94. Mode of the scores 7, 9, 11, 13, 15, 17, 19 is.....

1) 13.5
2) 14
3) No mode
4) 13

95. If all the deviations of the scores in a data are taken from the arithmetic mean, then the sum of deviations is.....

1) A.M.
2) ∞
3) 1
4) 0

96. The Mean and Mode of a uni modal data are 32 and 29 respectively. Then the Median is.....

1) 29.5
2) 30
3) 30.5
4) 31

97. The range of 20, 18, 37, 42, 3, 15, 15, 26 is

1) 8
2) 22
3) 39
4) 42

98. Find the mode when median is 125.6 and mean is 128.

1) 120
2) 120.8
3) 125
4) 128

99. The mean of 20 measurements was calculated to be 56 cm. But it was found that one of the measurements was recorded as 64 cm., instead of 61 cm. The correct mean will be (in cm.)

1) 53
2) 54.5
3) 56.15
4) 55.85

100. If between two numbers the A.M. is 25, the H.M. is 9 then the G.M. is

1) 17
2) 8
3) 15
4) 225