

SRI GURUDATTA COACHING CENTRE (SARMA INST.)
MATHEMATICS

1. In a camp there are provisions for 400 persons for 23 days. If 60 more join the camp, then the number of days the provision will last.

- (1) 20 days (2) 21 days (3) 24 days (4) 25 days

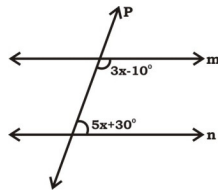
2. The sum of the present ages of 5 brothers is 120 years. How many years ago was the sum of their ages 80 years.

- (1) 6 (2) 7 (3) 8 (4) 9

3. If the altitude of an equilateral triangle is $\sqrt{6}$ cm its area is —

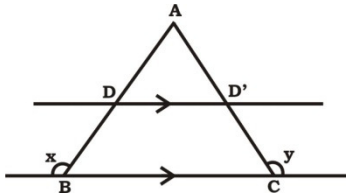
- (1) $2\sqrt{3}$ cm² (2) $2\sqrt{2}$ cm² (3) $3\sqrt{3}$ cm² (4) $6\sqrt{2}$ cm²

4. Given that mPn and p is the transversal then the value of 'x' is



- (1) 160° (2) 20° (3) 130° (4) 180°

5. In the figure BCPDD ζ Dx = 127°, Dy = 115°. The interior angles of triangle ADD ζ



- (1) 60°, 60°, 60° (2) 60°, 50°, 70° (3) 53°, 65°, 62° (4) 50°, 80°, 50°

6. The ratio of Boys to girls is 4 : 7 of 55 students. How many girls need to make the ratio as 1:2

- (1) 10 (2) 5 (3) 15 (4) 20

7. In how many years will a sum of Rupees 2000 yield a simple interest of Rupees 560 at the rate of 14% per annum

- (1) 1 year (2) 1 year 6 months (3) 2 years (4) 3 years

8. If $\frac{16}{x}$ is a natural number and 'x' is a natural number, the number of possible values for 'x' is

- (1) 4 (2) 5 (3) 6 (4) 7

9. The last digit in decimal representation of $(2015 \times 2017 \times 2019) - (2016 \times 2018 \times 2020)$ is

- (1) 8 (2) 1 (3) 4 (4) 5

10. 60 men can do $\frac{1}{4}$ th of a work in 25 days. For completing the remaining $\frac{3}{4}$ th of work in 50 days how many more men be employed

- (1) 90 (2) 30 (3) 60 (4) 50

11. The product of 3 prime numbers is 105. The sum of these three numbers is

- (1) 12 (2) 13 (3) 14 (4) 15

12. The angles of a triangle are in the ratio 2 : 3 : 4, then the maximum measure of angle is

- (1) 40° (2) 60° (3) 100° (4) 80°

13. The six digit number $\underline{36x48y}$ is divisible by 4 and by 9 and by 10. The sum of digits x and y is _____.

- (1) 8 (2) 18 (3) 6 (4) 9

Space for rough work

14. The number of real solutions (x, y) of the system $x^2 + y = 42 = y^2 + x, x = y$.

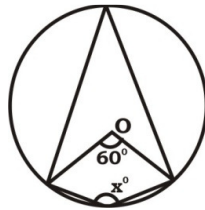
(1) 1

(2) 2

(3) 0

(4) None of these

15. What is the least number multiplied by 720 to get perfect cube.
 (1) 200 (2) 100 (3) 150 (4) 300
16. The sum of first 50 even natural number is
 (1) 2500 (2) 5000 (3) 2550 (4) 5050
17. If $5x^2 - 12xy + 4y^2 = 0$, $xy \neq 0$ then the value of x/y is
 (1) -2 (2) $1/2$ (3) $2/5$ (4) $-5/2$
18. If the line $2x + 3y + k = 0$ passes through the point $\left(\frac{-1}{2}, \frac{-1}{3}\right)$ then the value of $k =$ —
 (1) 3 (2) 4 (3) 2 (4) 5
19. In ΔABC , 'D' is midpoint of BC and E is midpoint of AD and area of ΔABC is 48 cm^2 then area of ΔABE is _____.
 (1) 96 cm^2 (2) 24 cm^2 (3) 12 cm^2 (4) 8 cm^2
20. The angles of a quadrilateral are x° , $x - 10^\circ$, $x + 30^\circ$ and $2x^\circ$. Find the greatest angle
 (1) 136° (2) 180° (3) 68° (4) None of these
21. The perimeter of a square is same as circumference of a circle. The ratio of areas of square and circle is _____.
 (1) $4 : \pi$ (2) $\pi : 4$ (3) $2 : \pi$ (4) $\pi : 2$
22. In the adjacent figure $x^\circ =$ — where O is the centre of the circle.

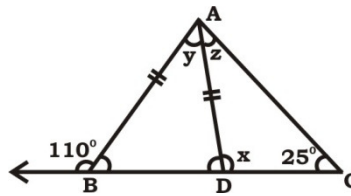


- (1) 120° (2) 180° (3) 150° (4) 40°
23. A sum of money placed at compound interest doubles in 4 years. In how many years will it amount to eight times of itself?
 (1) 8 years (2) 16 years (3) 12 years (4) 6 years
24. The sum of $3.\bar{2}$ and $5.\bar{4}$ is
 (1) $\frac{78}{3}$ (2) $\frac{58}{3}$ (3) $\frac{58}{9}$ (4) $\frac{78}{9}$
25. $4(a - b)^2 - 9(b - c)^2 =$
 (1) $(2a + 2b - 3c)(2a + 5b - 3c)$ (2) $(2a + b - 3c)(2a - 5b + 3c)$
 (3) $(2a - b - 3c)(2a + 5b - 3c)$ (4) $(2a - b - 3c)(2a - 5b + 3c)$
26. If $2^x - 2^{x-1} = 4$ what is the value of $2^x + 2^{x-1}$?
 (1) 8 (2) 12 (3) 10 (4) 16
27. If the marked price of an article is Rs. X, and the selling price is Rs. Y, then what is the discount percentage?
 (1) $\frac{(x - y)100}{x}$ (2) $\frac{(y - x)100}{x}$ (3) $\frac{(y - x)}{y} \cdot 100$ (4) $\frac{(x - y)}{100}$
28. The number of observations in a group is 40. If the mean of first 10 is 4.5 and that of the remaining 30 is 3.5, then the mean of the whole group is
 (1) $\frac{1}{5}$ (2) $\frac{15}{4}$ (3) 4 (4) $\frac{16}{5}$

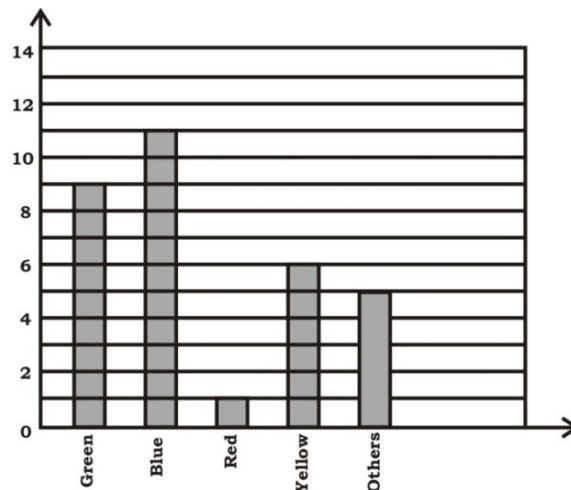
Space for rough work

29. If $abc = 6$ and $a + b + c = 6$ then $\frac{1}{ac} + \frac{1}{ab} + \frac{1}{bc} = \text{---}$
- (1) 1 (2) 2 (3) 3 (4) None of these
30. The sum of two consecutive odd numbers is 56 then the smallest number is
- (1) 25 (2) 29 (3) 27 (4) 31

31. The mean of first five prime numbers is
 (1) 3 (2) 3.6 (3) 7 (4) 5.6
32. If the three digit number $\overline{56z}$ divided by 10 leaves remainder 6, then the value of 'z'
 (1) 12 (2) 6 (3) 7 (4) 0
33. In what time will Rs.1000 become Rs.1331 at 10% per annum compound annually
 (1) 2 years (2) 3 years (3) 4 years (4) 5 years
34. If $\sqrt{5} = 2.236$ the value of $\sqrt{45} + \sqrt{605} - \sqrt{245}$ correct to 3 decimal places is —
 (1) 15.652 (2) 11.180 (3) 18.652 (4) 16.652
35. The smallest number which when divided by 4, 6, 10, 15 gives the same remainder 3 is
 (1) 57 (2) 123 (3) 63 (4) 39
36. In adjoining figure find the measure of angle z.



- (1) 40° (2) 110° (3) 45° (4) None of these
37. The H.C.F of two numbers is 28 and their L.C.M is 336. If one number is 112 then the other number is —
 (1) 64 (2) 84 (3) 34 (4) None of these
38. If $a + b + c = 9$ and $ab + bc + ca = 26$ then the value of $a^3 + b^3 + c^3 - 3abc$ is —
 (1) 27 (2) 29 (3) 495 (4) 729
39. 11 oranges are bought for Rs.10 and 10 oranges are sold for Rs. 11. Find the gain or loss percent
 (1) 21% loss (2) 11% gain (3) 21% gain (4) 11% loss
40. Miss Neha asked the children in her class, "what is your favourite colour? Her results are shown on the bar chart. How many children are there in her class?



- (1) 28 (2) 30 (3) 42 (4) 37

Space for rough work

PHYSICS

41. An electrical appliance marked with 250W is used for 30 hours. If the cost of 1 KWH is Rs. 2.50, calculate the cost of the total power
- (1) Rs. 9.75 (2) Rs. 20.75 (3) Rs. 21.75 (4) Rs. 18.75

42. $20 \text{ gm/cm}^3 =$ _____
(1) 2000 kg/m^3 (2) $20 \times 10^{-3} \text{ kg/m}^3$ (3) $20 \times 10^3 \text{ kg/m}^3$ (4) 200 kg/m^3
43. The velocity of a car changes from 36 kmph to 90 kmph in 15 sec. The acceleration of the car is
(1) 4 m/s^2 (2) 1 m/s^2 (3) 3 m/s^2 (4) 2 m/s^2
44. A body travels along AB, BC, CD of a square ABCD of side 30m with a speed of 9 m/s. The average velocity of the body is
(1) 3 m/s (2) 6 m/s (3) 9 m/s (4) 10 m/s
45. A body moves in a circle of radius 'r' along the circumference from one end of a diameter to the other. The displacement and distance travelled are
(1) $2r, \pi r$ (2) $\pi r + 2r, 2r$ (3) $\pi r - 2r, 2r$ (4) $r, \pi r$
46. A body of mass 2.4 kg is moving with a velocity 12 m/s. Due to a force it displaces 240m in 10 sec. The magnitude of force is
(1) 24 N (2) 5.76 N (3) 48 N (4) 7.2 N
47. A body of mass 5kg is at rest. Due to a force of 25N it acquires a velocity 40 m/s in
(1) 5 sec (2) 10 sec (3) 8 sec (4) 6 sec
48. A floating body always displaces its own
(1) Mass of liquid (2) Volume of liquid (3) Weight of liquid (4) None of the above
49. 25 cm of vertical column of mercury exerts a pressure of 3400 pascal. If $g = 10 \text{ m/s}^2$ then density of mercury is
(1) 1360 kg/m^3 (2) 13600 kg/m^3 (3) 13.6 kg/m^3 (4) 136 kg/m^3
50. What quantity of water is required to rise its temperature from 75° to 70°C using 7938J of energy.
(1) 42 gm (2) 52 gm (3) 38 gm (4) 25 gm
51. 40 gm of water at 80°C is mixed with 160 gm of water at 20°C . The resultant temperature is
(1) 40°C (2) 30°C (3) 32°C (4) 50°C
52. A musical instrument produces 2340 vibrations in 90 sec. If the speed of sound is 338 m/s, the wavelength of the sound is
(1) 13 m (2) 12 m (3) 23 m (4) 26 m
53. 25000 waves pass through a point in 4 minutes and 10 seconds. If the wavelength is 3.33m. The speed of the wave is
(1) 100 m/s (2) 333 m/s (3) 330 m/s (4) 250 m/s
54. The surest test for the electrification of a body is
(1) Attraction (2) Repulsion (3) Both 1 and 2 (4) None of the above
55. A train of length 100 m is moving with a velocity of 72 kmph. The time taken by it to cross a bridge of length 200 m is
(1) 24 sec (2) 15 sec (3) 10 minutes (4) 10 sec
56. Near coastal regions the sea breeze blows
(1) During the day time only (2) During the night time only
(3) Both (1) and (2) (4) None of the above.
57. The vibrations with more than 20000 Hz frequency are called
(1) Supersonic vibrations (2) Hypersonic vibrations
(3) Ultrasonic vibrations (4) None of the above
58. One kilogram force is equal to ($g = 10 \text{ m/s}^2$)

59. A car covers 30 km with uniform speed of 60 km/hr and the next 30 km at a uniform speed of 40 km/hr. The total duration of journey
- (1) 120 min (2) 75 min (3) 45 min (4) 30 min





Space for rough work

60. Distance between two adjacent crests of a wave
- (1) Amplitude (2) Time period (3) Frequency (4) Wavelength
61. The value of the acceleration due to gravity on the surfaces of earth is
- (1) Maximum at equator (2) Minimum at poles
- (3) Maximum at poles (4) Same at all places

62. Name of the electrode in a voltameter connected to negative terminal of a battery is
(1) Anode (2) Cathode (3) Plate (4) Bad conductor
63. A wave completes 24 cycles in 0.8 sec. The frequency of the wave is
(1) 30 Hz (2) 8 Hz (3) 24 Hz (4) 12 Hz.
64. A man stands at a distance of 250 m from wall. He shoots a rifle and hears the echo after 1.5 sec. What is the velocity of sound.
(1) 300 m/s (2) 330 m/s (3) 333.33 m/s (4) 400 m/s
65. A bulb of 500W is used for 10 minutes. How much energy will be consumed
(1) 3×10^4 J (2) 4×10^5 J (3) 8×10^5 J (4) 3×10^5 J

CHEMISTRY

66. Which of the following gases is produced, when metals react with acids?
(1) H_2 (2) O_2 (3) N_2 (4) None of these
67. Which of the following elements contain more number of neutrons?
(1) Aluminium (2) Potassium (3) Chlorine (4) Sulphur
68. Sulphur dioxide is an example for _____
(1) Basic oxide (2) Acidic oxide (3) Neutral oxide (4) Amphoteric oxide
69. Sulphur trioxide + water \longrightarrow _____
(1) Sulphuric acid (2) Sulphurous acid
(3) Hydrogen sulphide (4) Hydrogen + sulphur dioxide
70. Which of the following statements is correct?
(1) All metals are ductile (2) All non-metals are ductile
(3) Many metals are ductile (4) Very few metals are ductile
71. Which of the following sets of metals can displace copper from $CuSO_4$ solution?
(1) Na & Ag (2) Fe & Pt (3) Mg & Zn (4) Ag & Au.
72. Which of the following is a fossil fuel?
(1) Coal (2) Petroleum (3) Natural gas (4) All of these
73. Coaltar is a mixture of about _____ substances
(1) 50 (2) 100 (3) 150 (4) 200
74. Which of the following is an electronegative ion?
(1) Sodium ion (2) Oxide ion (3) Ammonium ion (4) Hydrogen ion
75. Which of the following is used as solvent for dry cleaning process?
(1) Kerosene oil (2) Diesel (3) Petrol (4) Fuel oil
76. Boiling point of kerosene oil is _____
(1) $40 - 170^\circ C$ (2) $170 - 250^\circ C$ (3) $250 - 350^\circ C$ (4) $350 - 400^\circ C$
77. The fuel which occurs above the petroleum in impervious rock is called _____
(1) Bio gas (2) Coal gas (3) Natural gas (4) Fuel oil
78. Which of the following sets of chemical substances is used in preparation of nylon polymer?
(1) Hexa methylene diamine and oxalic acid (2) Penta methylene diamine and acetic acid
(3) Hexa methylene diamine and adipic acid (4) Penta methylene diamine and adipic acid

79. Which of the following is known as “Artificial silk”?
(1) Nylon (2) Rayon (3) Acrylic (4) Terylene
80. Which of the following is the resin identification code of poly styrene?
(1)  (2)  (3)  (4) 
81. How many electrons are present in chloride ion?
(1) 10 (2) 12 (3) 17 (4) 18
82. How much time is required for degradation of paper by natural process?
(1) 1 to 2 weeks (2) 10 to 30 days (3) 2 to 5 months (4) 10 to 15 years
83. Oxides of which elements cause acid rain by being dissolved rain water?
(1) Sulphur and Hydrogen (2) Carbon and Hydrogen
(3) Hydrogen and Oxygen (4) Sulphur and Nitrogen
84. Which of the following fuels produces harmful products in small amounts?
(1) Coal (2) Diesel oil (3) Petrol (4) CNG
85. Which of the following is present in the candle flame?
(1) Blue zone (2) Dark zone (3) Middle zone (4) All of these
86. Which of the following has highest calorific value?
(1) Wood (2) Hydrogen (3) Petrol (4) Cow dung
87. How much amount of “CO₂” gas is produced, when 50 grams of CaCO₃ is heated strongly?
(1) 11 grams (2) 22 grams (3) 33 grams (4) 44 grams
88. $\text{Mg} + \text{ZnSO}_4 \rightarrow \text{MgSO}_4 + \text{Zn}$. This reaction is an example for _____
(1) Chemical combination (2) Chemical decomposition
(3) Chemical displacement (4) Chemical double displacement
89. Which of the following is/are example for chemical change?
(i) Decomposition of mercuric oxide on heating
(ii) Boiling of water (iii) Shaping of glass by heat
(1) (i) (2) (i) & (ii) (3) (ii) & (iii) (4) (i), (ii) & (iii)
90. Which of the following sets of elements is present in sulphuric acid?
(1) 2 ‘H’, 2 ‘S’ & 3 ‘O’ (2) 2 ‘H’, 1 ‘S’ & 4 ‘O’
(3) 3 ‘H’, 1 ‘S’ & 4 ‘O’ (4) 3 ‘H’, 1 ‘S’ & 4 ‘O’

Space for rough work