SRI GURUDATTA COACHING CENTRE (SARMA INST.)

MATHEMATICS

1. If $p = 20\%$ of 17, and $q = 17\%$ of 20 then $q^2 - qp =$

    (1) p   (2) q   (3) $\dfrac{p}{q}$ (4) 0

2. A fraction $\dfrac{p}{q}$ such that $\dfrac{2}{13} = m \times \dfrac{p}{q}$ and $\dfrac{3}{4} = n \times \dfrac{p}{q}$ where m, n are positive integers and p, q are relatively prime is

    (1) $\dfrac{5}{17}$ (2) $\dfrac{1}{17}$ (3) $\dfrac{1}{52}$ (4) $\dfrac{2}{52}$

3. $\sqrt{3^2 + 4^2 + 12^2} + 2017 - 2018 + 2019 - 2020 + 2021 - 2022 + 2023 - 2024 + 2025 - 2026 - \sqrt[3]{512}$ is equal to

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

4. A well trained runner uses up 600 calories of energy to run for an hour. If the runner ran for 2 hrsand 12 mins, the amount of energy he burned is

    (1) 1440   (2) 1320   (3) 1212   (4) 1272

5. If $3^x + 3^{x+2} = 7290$ then $x =$

    (1) 2   (2) 4   (3) 6   (4) None of these

6. If $a : b = 3 : 4$ and $a : (b + c) = 2 : 5$, the ratio $a : c$ is

    (1) $3 : 5$ (2) $4 : 5$ (3) $2 : 5$ (4) $6 : 7$

7. If the radius of a circle is increased by 100% then the area is increased by

    (1) 100%   (2) 200%   (3) 300%   (4) 400%

8. A bath tub will empty at a uniform rate in 15 minutes with the outlet closed it will fill at a uniform rate in 12 minutes. The time in minutes to fill the tub when both the inlet and outlet are opened is

    (1) 60 min   (2) 50 min   (3) 45 min   (4) 40 min

9. The solution of $\dfrac{a}{x - b} = \dfrac{b}{x - a}$ where $a \neq b$ is

    (1) $b - a$ (2) $a - b$ (3) $a + b$ (4) 1

10. The value of $2^7 + 2^7 + 2^7 + \ldots + 2^7$ (repeated 10 times) divided by 2^7 is

    (1) 2^{10} (2) 7   (3) 10   (4) 2^7

11. If $3^a + 3^b = 756$, $7^a + 2^c = 375$ and $5^a + 3 = 128$ then the value of a + b + c is

    (1) 12   (2) 14   (3) 18   (4) 20

12. In a trapezium PQRS, PQ‖RS, if $\angle P = 60°$, $\angle Q = 50°$, then $\angle R$, $\angle S$ are respectively

    (1) 120°, 130°   (2) 100°, 120°   (3) 50°, 60°   (4) 130°, 120°

13. The value of 1 – 2 + 3 – 4 + 5 ………… + 2017 is

   (1) 2017   (2) 2018   (3) 1009   (4) 1008

14. A cricketer had an average score of 62 runs in 9 innings. How many runs are to be scored by him in the 10th innings so that the average score becomes 65

   (1) 90   (2) 92   (3) 95   (4) 65

15. The value of $\dfrac{\frac{4}{9}-1}{1-\frac{9}{4}}$ is

   (1) $\frac{2}{3}$ (2) 1   (3) $\frac{4}{9}$ (4) $\frac{9}{4}$

16. The sum of 5 consecutive integers is 75, the smallest of these integers is

   (1) 11   (2) 13   (3) 9   (4) 14

17. The sum of reciprocals of factors of 24 is

   (1) $\frac{20}{8}$ (2) $\frac{20}{4}$ (3) $\frac{4}{5}$ (4) $\frac{5}{4}$

18. The angles of a quadrilateral are in the ratio 3 : 4 : 5 : 6 ,then the measure of largest angle is

   (1) 80°   (2) 120°   (3) 150°   (4) 100°

19. A chemical substance disintegrates in such a way that it gets halved every 10 minutes. If there is 20g of the substance present at a given time, how much will be left after 50 minutes?

   (1) $\frac{5}{8}$g   (2) $\frac{5}{2}$g   (3) 5g   (4) 2g

20. The real value of x in $\dfrac{1}{2^{2016}}$ – $\dfrac{1}{2^{2017}}$ = 2^{x} is

   (1) 2016   (2) 2017   (3) – 2017   (4) – 2016

21. A black and white photograph is 70% black and 30% white. It is enlarged 3 times. The percentage of white in the enlargement is

   (1) 90   (2) $66\frac{2}{3}$ (3) $33\frac{1}{2}$ (4) 30

22. If the total surface area of a cube is 384 sq.cm ,then its volume is

   (1) 512 Cm^3 (2) 64 Cm^3 (3) 500 cm^3 (4) 384 cm^3

23. ABCD is a rhombus. BD is the diagonal, if ∠A = 80°, then∠CDB is

   (1) 90°   (2) 60°   (3) 80°   (4) 50°

24. If $\left(\frac{3}{5}\right)^{3}.\left(\frac{3}{5}\right)^{-6}=\left(\frac{5}{3}\right)^{1-2x}$ then $x =$ _____.

   (1) 0   (2) 1   (3) −1   (4) 2

25. 2017000 ÷ 100gives the same result as 201700 ÷ _____.

   (1) 0.1   (2) 1   (3) 10   (4) 100

26. A boy is 2017 days old. The completed years by his next birthday

   (1) 5 years   (2) 6 years   (3) 7 years   (4) 8 years

27. If the mean of $4, 6, x, 9, 10, 5$ is $'7'$. Then the value of $'x'$ is

    (1) 8   (2) 7   (3) 6   (4) 10

28. In a ΔABC, if $AB + BC = 10cm$, $BC + CA = 12cm$, $CA + AB = 16cm$ then the perimeter of the triangle is

    (1) $19cm$ (2) $38cm$ (3) $28cm$ (4) $18cm$

29. A cycle costs Rs. 8500. Its cost is reduced to Rs. 7990. The percentage decrease in cost price is

    (1) 10%   (2) 5%   (3) 6%   (4) 8%

30. How many times a wheel of radius 28cm must rotate to go 528m(take $\pi = \frac{22}{7}$)

    (1) 170 times   (2) 300 times   (3) 200 times   (4) 100 times

PHYSICS:

31. Which one of the following is not a unit of time.

    (1) Microsecond   (2) Light year   (3) Leap year   (4) Lunar month

32. A $150m$ long train is moving with a Uniform Velocity of $45Kmph$. The time taken by the train to cross a bridge of length $850m$ is

    (1) $56\ sec$ (2) $68\ sec$ (3) $80\ sec$ (4) $92\ sec$

33. A cyclist moving on a circular track of radius $40m$. Completes half a revolution in $40sec$. Its Average velocity is

    (1) zero   (2) $4\pi m/sec$ (3) $2\ m/sec$ (4) $8\pi m/sec$

34. The terrestrial planets are

    (1) Mercury, Venus and Earth   (2) Mercury, Venus and Jupiter

    (3) Mercury, Earth and Mars   (4) Mercury, Venus, Earth and Mars

35. One second is equal to

    (1) $\frac{1}{68400}$ of the mean solar day   (2) $\frac{1}{86400}$ of the mean solar day

    (3) $\frac{1}{48600}$ of the mean solar day   (4) none of these

36. A body travels first half of the distance with a speed $24m/s$ and next half of the distance with a speed of $36m/s$. The average speed is

    (1) $28.8\frac{m}{s}$ (2) $30\frac{m}{s}$ (3) $12\frac{m}{s}$ (4) $30.2\frac{m}{s}$

37. An athlete runs some distance before taking a jump, because

    (1) he gains enough energy to take him through a long distance

    (2) it helps him to apply large force required for a long jump

    (3) required action and reaction force increases

    (4) by running he gives himself a large inertia of motion

38. The momentum of an electron of mass $9 \times 10^{-31} Kg$ moving with a velocity of $6 \times 10^7 m/s$ is

    (1) $54 \times 10^{-19} Ns$ (2) $5.4 \times 10^{-23} Ns$ (3) $54 \times 10^{-25} Ns$ (4) none of these

39. The pressure exerted by liquid is independent of

    (1) depth   (2) density

    (3) acceleration due to gravity   (4) area of cross section

40. A piece of lead weighs $200g$ in water. If density of lead is $11g/cc$ then it weighs_____ in air.

    (1) $220g$ (2) $200\ g$ (3) $222\ g$ (4) none of these

41. When a liquid is heated; its density

    (1) decreases   (2) increases   (3) does not change   (4) none

42. What is the healthy man's temperature?

    (1) $98.4^0 C$ (2) $37^0 C$ (3) $40^0 C$ (4) none of these

43. How much heat energy is required to increase the temperature of $120\ g$ of water from $10^0 C$ to $90^0 C$

    (1) $9600\ cal$ (2) $1200\ cal$ (3) $10800\ cal$ (4) none of these

44. The ratio of thermal capacities of two aluminium spheres of radii $8cm$ and $16cm$ is

    (1) $4:1$ (2) $1:4$ (3) $1:8$ (4) $8:1$

45. Sound cannot travel through

    (1) solids   (2) liquids   (3) vacuum   (4) gases

46. To and fro motion of a particle about its mean position is called

    (1) frequency   (2) amplitude   (3) vibration   (4) wavelength

47. Vibrating bodies produce

    (1) sound   (2) heat   (3) light   (4) none of these

48. Plane mirrors are used in the construction of

    (1) Periscope   (2) Microscope   (3) Telescope   (4) Thermoscope

49. A fuse wire is an alloy of

    (1) Lead and Copper   (2) Tin and Aluminum   (3) Lead and Tin   (4) Tin and Copper

50. Choose the correct statement from the following

    (1) a single magnetic pole exists   (2) like poles repel each other

    (3) Unlike poles repel each other   (4) none of these

51. Which of the following is a magnetic material?

    (1) Wood   (2) Plastic   (3) Copper   (4) Iron

52. A cell converts

    (1) electrical energy into chemical energy   (2) chemical; energy into electrical energy

    (3) magnetic energy into electrical energy   (4) electrical energy into mechanical energy

53.   separation of elements from compounds using electricity is called

(1) electrolysis   (2) electrolyte   (3) electrokiness   (4) none of these

54.   Electric charge is measured in

(1) Coulomb   (2) ampere   (3) Volt   (4) Watt

55.   The product of Voltage and Electric current gives

(1) resistance   (2) power   (3) conductance   (4) none of these

56.   Which of the following measurements has not been expressed in correct S.I. unit?

(1) 5m of cloth   (2) 20 seconds of time   (3) $25m^2$ of surface area(4) 2 lit. of cooking oil

57.   One litre is equal to

(1) $10^{-2}m^3$ (2) $10^{-3}m^3$ (3) $10^{-4}m^3$ (4) $10^{-6}m^3$

58.   Which of the following is not matched correctly?

(1) speedometer- distance   (2) goniometer- angles

(3) Anemometer - Wind speed   (4) Stop watch – time

59.   Which of the following is a good conductor of heat?

(1) Metals   (2) Glass   (3) Water   (4) Wood

60.   Two plane mirrors are kept at the following angles one by one. In which case is the number of images formed the maximum?

(1) 30^0 (2) 60^0 (3) 45^0 (4) 90^0

CHEMISTRY:

61.   The valency of Ferrous and Ferric ions respectivelyare_____.

(1) $+2, +1$ (2) $+2, +3$ (3) $+2, +4$ (4) $+1, +3$

62.   The number of Molecules present in $32\ grams$ of Oxygen is _____

(1)6.023×10^{22} (2) 6.023×10^{23} (3) 3×10^{23} (4) 1.2×10^{24}

63.   The chemical formula of $Iron(III)$ Sulphate is _____.

(1) FeS (2) $FeSO_3$ (3) $FeSO_4$ (4) $Fe_2(SO_4)_3$

64.   Sulphuric acid turns blue litmus paper into _____.

(1) Dark blue   (2) Green   (3) Yellow   (4) Red

65.   Gunpowder is a mixture of_____, and it is extensively used in fire crackers.

(1) Sulphur, Nitre, Charcoal   (2) Nitrogen, Sulphur, Carbon

(3) Carbon, Nitre, Sodium   (4) Sulphur, Nitrogen, Potassium

66. Nitrogen atom accepts electrons to attain stable structure of nearest Noble gas configuration. The resultant ion is known as _____.

(1) Anion   (2) Cation   (3) Neutral   (4) Atom

67. The amount of magnesium present in one mole of Magnesium Oxide is _____ g.

(1) 16   (2) 48   (3) 24   (4) 40

68. The Molecular weight of Ammonium Sulphate is

(1) 86   (2) 118   (3) 64   (4) 132

69. A solution which can hold maximum amount of solute in the solution is known as _____.

(1) Saturated solution   (2) Unsaturated solution

(3) Super saturated solution   (4) none of these

70. One mole of Glucose contains _____ moles of Carbon.

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

71. Number of atoms present in $14\ grams$ of Nitrogen is _____.

(1) 1.20×10^{22} (2) 3.01×10^{23} (3) 6.023×10^{23} (4) 6.023×10^{22}

72. One mole of any gas at NTP occupies _____ litre of volume.

(1) $6.023 \times 10^{23}\ lit$ (2) $20\ lit$ (3) $48\ lit$ (4) $22.4\ lit$

73. Oxides of metals are usually _____ in nature.

(1) Acidic   (2) Neutral   (3) Basic   (4) None of these

74. The fibre obtained by chemical treatment of wood pulp is called _____

(1) Nylon   (2) Rayon   (3) Natural Silk   (4) Polyester

75. Polycot is obtained by mixing _____ .

(1) Nylon and wool   (2) Polyester and wool   (3) Nylon and cotton   (4) Polyester and cotton

76. How much approximate time required for degradation of cotton cloth?

(1) 1 – 2 weeks   (2) 2 – 5 months   (3) about a month   (4) about a year

77. Resources which are limited in nature are known as _____ resources.

(1) exhaustible   (2) inexhaustible   (3) unnatural   (4) none of these

78. Carbonisation means _____.

(1) slow conversion of dead vegetation into coal   (2) deposition of soil

(3) falling of tress   (4) none of these

79. Which of the following is called "black gold"?

(1) petroleum   (2) coal   (3) coal tar   (4) natural gas

80. Petrol and kerosene oil are obtained from _____.

(1) coal tar   (2) coal   (3) petroleum   (4) coal gas

81. Combustion is a _____.

    (1) physical process   (2) chemical process   (3) both 1 and 2   (4) none of these

82. Which of the following substances has lowest ignition temperature?

    (1) wood   (2) petrol   (3) coal   (4) diesel oil

83. Which of the following fuels has low calorific value?

    (1) petrol   (2) diesel   (3) wood   (4) cow dung

84. What is the physical state of LPG fuel?

    (1) solid   (2) liquid   (3) gas   (4) liquid and solid

85. Approximately how many times a proton is heavier than an electron?

    (1) 1860   (2) 1000   (3) 2000   (4) 1840

86. Which of the following sets of elements is present in Sodium hydroxide compound?

    (1) $S, H \& O$ (2) $Na, H \& O$ (3) $C, H \& O$ (4) none of these

87. Which of the following substances contains Ammonium hydroxide?

    (1) Lime water   (2) Soap   (3) Curd   (4) Window cleaner

88. Phenolphthalein indicator gives _____ colour with base solutions.

    (1) pink   (2) yellow   (3) brown   (4) red

89. Burning of coal is an example of _____.

    (1) Physical change   (2) Chemical change

    (3) both (1) & (2)   (4) neither physical nor chemical change

90. Which of the following gases is produced, when acetic acid reacts with baking soda?

    (1) SO_2 (2) CO_2 (3) O_2 (4) N_2