MATHEMATICS AND SCIENCE

1. The basic theme for water conservation is

(1) Collecting water where it falls

(2) Collecting water in dams

(3) Collecting water in canals or streams

(4) None of the above

Ans. 1

2. Detergent is

(1) salt of strong acid and strong base

(2) salt of weak acid and strong base

(3) salt of strong acid and weak base

(4) salt of weak acid and weak base

Ans. 1

3. The colour of the fast rotating Newton's Disc, appears to be

(1) like a rainbow

(2) orange

(3) almost white

(4) colourless

Ans. 3

4. Which group shows viral disease ?

(1) Cholera and Polio

(2) Typoid and Cold

(3) Chicken pox and Polio

(4) Polio and Tuberculosis

Ans. 3

5. The incubation periods for typhoid bacteria is

(1) 5 days

(2) 10-20 days

(3) 20-25 days

(4) 20-30 days

Ans. 2

6. Which of the following quantities can be measured by potentiometer?

(1) e.m.f. of cell

(2) current

(3) resistauce

(4) All of the above

Ans. 4

7. The image formed by a convex lens, when the object is placed between *f* and *2 f* is

(1) Real and erect

(2) Virtual and inverted

(3) Virtual and erect

(4) Real and inverted

Ans. 4

8. Magnets lose their magnetic properties, when

(1) Heated

(2) Dropped from a height

(3) Hammered

(4) All of the above take place

Ans. 4

9. Brass is made up of

(1) Zinc and copper

(2) Zinc and tin

(3) Copper and aluminium

(4) Aluminium and tungsten

Ans. 1

10. The acceleration of a particle in SHM is

(1) always zero

(2) always constant

(3) maximum at mean position

(4) maximum at amplitude

Ans. 4

11. The food required for body growth is

(1) Fat containing

(2) Protein containing

(3) Carbohydrate containing

(4) Fibrous

Ans. 2

12. Atmosphere Nitrogen converts into soluble substances by

(1) Algae

(2) Rhizobium

(3) Fungi

(4) Lichen

Ans. 2

13. If pollen grain is transferred from anther to stigma of the same flower, it is called

(1) Autogamy

(2) Geitonogamy

(3) Xenogamy

(4) Syngamy

Ans. 1

14. ‘Hertz” is the unit of

(1) Force

(2) Pressure

(3) Momentum

(4) Frequency

Ans. 4

15. A taxonomy includes

(1) Classification

(2) Nomenclature

(3) Identification

(4) All of the above

Ans. 4

16. An electric cell transforms

(1) Potential Energy into Kinetic Energy

(2) Potential Energy into Electrical Energy

(3) Electrical Energy into Kinetic Energy

(4) Chemical Energy into Electrical Energy

Ans. 4

17. Example of striated muscle is

(1) Alimentary canal muscle

(2) Cardiac muscle

(3) Reproductive tract muscle

(4) None of the above

Ans. 2

18. Minute cells are found in mycoplasma. Mycoplasma is

(1) Virus

(2) Fungi

(3) Bacteria

(4) Green algae

Ans. 3

19. “Cytokinin” is a

(1) Plant Enzyme

(2) Animal Hormone

(3) Animal Enzyme

(4) Plant Hormone

Ans. 4

20. The phenomenon of obtaining pure water from the sea water is

(1) Osmosis

(2) Filtration

(3) Desaltation

(4) Reverse Osmosis

Ans. 4

21. The standard atmospheric pressure cannot be expressed as

(1) 760 mm Hg

(2) 1.03 Kg/cm^2

(3) 101.3 Kilo Pascal

(4) 1.03 Kg/cm^3

Ans. 4

22. The desired varieties of economically useful crops are raised by

(1) Vernalization

(2) Mutation

(3) Natural selection

(4) Hybridization

Ans. 4

23. The substance used for adsorbing poisonous gases is

(1) Graphite fibre

(2) Carbon black

(3) Activated Charcoal

(4) Sodium Sulphate

Ans. 1

24. Migration is commonly practiced by

(1) Birds

(2) Mammals

(3) Insects & Fishes

(4) All of these

Ans. 4

25. The beans arc cooked faster in pressure cooker because

(1) boiling point increase with increasing pressure

(2) boiling point decrease with increasing pressure

(3) Extra pressure of' pressure cooker softens the beans

(4) internal energy is not lost while cooking in pressure cooker

Ans. 1

26. The primary rainbow appears after the rain is due to

(1) the reflection of light from rain drop

(2) the total internal reflection of sun rays by small drops

(3) the diffraction of rain drops

(4) the double refraction by rain drops

Ans. 2

27. Keeping the momentum unchanged, if the mass of a body is double, then its kinetic energy

(1) remains unchanged

(2) gets doubled

(3) becomes half

(4) increases four times

Ans. 3

28. While storing a horse shoe magnet, its poles are placed in contact with

(1) a piece of wood

(2) a piece of iron

(3) a gold wire

(4) a piece of glass

Ans. 2

29. Natural indicator litmus is extracted from

(1) Lichens

(2) Earth worm

(3) Ant

(4) algae

Ans. 1

30. When an ant bites calamine solution is applied on the skin. The chemical formula of calamine is

(1) $CaCO_3$

(2) CaC_2

(3) $ZnCO_3$

(4) K_2CO_3

Ans. 3

31. In a mixture of 42 Kg rice and wheat, the ratio of rice and wheat are 5 : 2. If 3 Kg of wheat is added in the mixture, then what will be the ratio of rice and wheat in new mixture?

(1) 1:2

(2) 2:1

(3) 3:2

(4) 2:3

Ans. 2

32. Find the simple interest of 2 years of Rs. 4,000 at the rate of 10% per annum

(1) Rs.8

(2) Rs.80

(3) Rs. 800

(4) Rs. 1,600

Ans. 3

33. Vaidehi sells 144 hens and she gets loss equal to selling price of 6 hens.

What is her loss in percentage ?

(1) 14%

(2) 8%

(3) 1%

(4) 4%

Ans. 4

34. Differentiate tan (2x + 3) with respect to x

(1) $2\cos^2(2x+3)$

(2) $2\sec^2(2x+3)$

(3) $2x\ \sec^2(2x+3)$

(4) $2\ \sec^2.2x$

Ans. 2

35. The sum of Monika and her Mothers age is 49 years. Seven years before the Mother's age was four times of Monika's age. Find the age of Monika.

(1) 35 years

(2) 21 years

(3) 12 years

(4) 14 Years

Ans. 4

36. If Rs. 1000 becomes Rs. 1102.50 in 2 years. What is the compound interest?

(1) 5% annual

(2) 4 % annual

(3) 7% annual

(4) 6% annual

Ans. 1

37. The value of (-30) x [33 + (-23)] + (-203) ÷ (- 29) is

(1) 295

(2) -259

(3) -592

(4) -293

Ans. 4

38. How 70,040,000,000 can be written in standard form?

(1) 700.4×10^{10}

(2) 7004×10^{7}

(3) 7.004×10^{10}

(4) 0.7004×10^{11}

Ans. 3

39. If Q is the angle between any two vectors $\overleftarrow{a}$ and $\overrightarrow{b}$, then $|\overleftarrow{a}.\overrightarrow{b}| = |\overleftarrow{a} \times \overrightarrow{b}|$ when Q is equal to

(1) 0

(2) $\pi/2$

(3) $\pi/4$

(4) π

Ans. 3

40. The value of $(0.000729)^{-3/4} \times (0.09)^{-3/4}$ is

(1) 10000/81

(2) 1000000/729

(3) 729/1000000

(4) 81/100000

Ans. 2

41. The quotient and remainder obtained from dividing $2 + 7x + 7x^2 + 2x^3$ by $1 + 2x$ are respectively

(1) 1, $x^2+3x—2$

(2) 0, x^2+3x+2

(3) x^2+3x+2, 0

(4) x^2+3x-2, 1

Ans. 3

42. If Arithmetic mean and Geometric mean of two positive numbers *a* and *b* are 10 and 8 respectively, find the numbers

(1) 2, 4

(2) 4, 16

(3) 4, 8

(4) 2, 16

Ans. 2

43. Find the principal value of $\cot^{-1}(-1/\sqrt{3}$

(1) $2\pi/3$

(2) $3/2\pi$

(3) $5\pi/2$

(4) $\pi/5$

Ans. 1

44. Find the square root of the number 1296

(1) 24

(2) 36

(3) 34

(4) 26

Ans. 2

45. What is the least number, divided by 12, 16, 24 and 36 gives remainder 9 in each case?

(1) 151

(2) 149

(3) 153

(4) 137

Ans. 3

46. Find the measurement of the angle which is equal to its complementary angle

(1) 90°

(2) 45°

(3) 80°

(4) 100°

Ans. 1&2

47. Which of the following cannot be the probability of an event?

(1) 2/3

(2) -1.5

(3) 15%

(4) 0.7

Ans. 2

48. Find the area of region bounded by the curve $y^2 = x$ and the line x = 1, x = 4 and the x-axis

(1) 14/3

(2) 3/14

(3) 12/7

(4) 4/12

Ans. 1

49. The mean, mode and median of the given data:

6, 15, 50, 120, 80, 100, 15, 10, 10, 8, 15 are respectively

(1) 39, 15, 17

(2) 15, 15, 39

(3) 39, 15, 15

(4) 37, 15, 15

Ans. 3

50. The areas of square and rectangle are equal. If side of square is 40 cm and length of rectangle is 64 cm then perimeter of rectangle is

(1) 25 cm

(2) 187 cm

(3) 178 cm

(4) 1600 cm

Ans. 3

51. How can 80 be written in Roman system

(1) XXC

(2) LXXX

(3) XXXL

(4) XXL

Ans. 2

52. A bus travels 267.3 Km in 6.6 hours. Find out average distance covered by bus per hour

(1) 4.05 Km

(2) 40.5 Km

(3) 41.5 Km

(4) 50.4 Km

Ans. 2

53. Circular area bounded by a chord and corresponding arc of a circle is called

(1) Radial Sector

(2) Circumference

(3) Chord

(4) Circular Sector

Ans. 4

54. The cube of 87 will be

(1) 658403

(2) 648503

(3) 658503

(4) 658513

Ans. 3

55. Express $\frac{5+\sqrt{2i}}{1-\sqrt{2i}}$ n the form a + b

(1) $1+2\sqrt{2i}$

(2) $1- 2\sqrt{2i}$

(3) $2\sqrt{2}$ +i

(4) $2\sqrt{2}$ -i

Ans. 1

56. If 14/21= x/3 = 6/y, then values of x and y are respectively.

(1) 2,9

(2) 9,2

(3) 7, 9

(4) 2, 7

Ans. 1

57. The diagonal of a square is 3.2 m. Its area is

(1) 10.24 m^2

(2) 2.56 m^2

(3) 3.41m^2

(4) 5.12m^2

Ans. 4

58. The diameter of a bus wheel is 1.40 m. What is the speed of bus if it rounds 250 per minute?

(1) 33 Km/h

(2) 86 Km/h

(3) 68 Km/h

(4) 66 Km/h

Ans. 4

59. How many square tiles of 50 cm wide are required to cover a room's floor of 3 m width and 4 m length?

(1) 96

(2) 84

(3) 48

(4) 240

Ans. 3

60. Convert 40°21' into radian measure

(1) 270 /121π

(2) 270 π/121

(3) 540 π /121

(4) None of these

Ans. 4