SCIENCE

1. The method of purifying metals by passing electricity is called

(1) Electrolysis
(2) Electroplating
(3) Electrorefining
(4) Chemical effects

2. Sound can not travel through

(1) air
(2) water
(3) vacuum
(4) steel

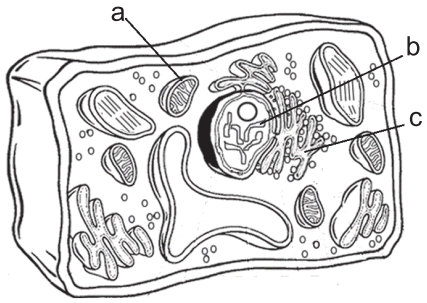
3. Which one of the following fibres are made up of polyamides?

(1) Dacron
(2) Orlon
(3) Nylon
(4) Rayon

4. Which of the following elements belongs to the group that includes the most active metals?

(1) Aluminium
(2) Sodium
(3) Iron
(4) Mercury

5. Name the structures labelled with a, b and c.



(1) a – Nucleus, b – Endoplasmic Reticulum, c – Chloroplast
(2) a – Nucleus, b – Chromosome, c – Golgi body
(3) a – Mitochondria, b – Chromosome, c – Endoplasmic Reticulum
(4) a – Mitochondria, b – Chromosome, c – Golgi body

6. An electrochemical cell which generates an electric current is called

(1) Volta meter
(2) Ammeter
(3) Voltmeter
(4) Voltaic cell

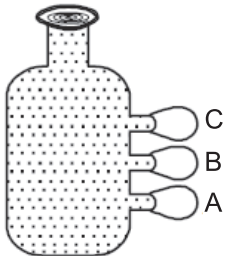
7. Asphalt is used for/as

(1) Aviation fuel
(2) Making road surfaces
(3) Running water pumps
(4) Dry cleaning of clothes

8. If an element is a gas at room temperature, then it must be a/an

(1) Alkali Metal
(2) Nonmetal
(3) Alkaline Earth Metal
(4) All of these

9. A bottle is designed in a way as shown in figure. Three identical balloons are fixed on the three glass tubes of same cross-sectional area. When the bottle is completely filled with water, the amount of the bulge of the balloons will be in order



(1) A < B < C
(2) A > B > C
(3) A = C > B
(4) A = B = C

10. Which of the following is not a cause of the formation of a green coloured coating over the surface of copper metal?

(1) Sulphur dioxide

(2) Moisture

(3) Carbon dioxide

(4) Oxygen

11. Identify the scientist who coined the term 'cell'.

(1) Robert Koch

(2) Robert Hooke

(3) Edward Jenner

(4) Louis Pasteur

12. Largest satellite (natural) of our solar system-

(1) Phobos

(2) Ganymede

(3) Deimos

(4) Sinope

13. To make a kaleidoscope we require

(1) Three plane mirrors

(2) Four plane mirrors

(3) Three glass sheets

(4) Four glass sheets

14. In the retina of the eye, the area having no sensory cells is called

(1) iris

(2) blind spot

(3) cornea

(4) dark spot

15. Buoyant force arises due to

(1) liquid properties

(2) pressure difference

(3) gravitational force

(4) all of these

16. Find the wavelength of a wave whose time period is 0.05s and speed is 200m/s.

(1) 5m

(2) 10m

(3) 15m

(4) 20m

17. Valency of Ar is

(1) One

(2) Two

(3) Zero

(4) Six

18. Find the odd one out.

(1) Li

(2) K

(3) Na

(4) Mg

19. When a sperm containing Y chromosome fertilizes an egg with X chromosome, the zygote develops into a _____ child.

(1) Female

(2) Either a male or female

(3) Male

(4) No child

20. The process of loosening and turning the soil is called _____

(1) broadcasting

(2) irrigation

(3) tilling

(4) leveling

21. Menopause occurs at the age of

(1) 10-12 years in boys

(2) 45-50 years in men

(3) 10-12 years in girls

(4) 45-50 years in women

22. The amphibians of Plant Kingdom

(1) Bryophytes

(2) Pteridophytes

(3) Gymnosperms

(4) Thallophytes

23. Testosterone is a hormone found in human-

(1) children (2) males and females

(3) females only (4) males only

24. A method of preservation in which the milk is heated to about 70°C for 15 to 30 seconds and cooled suddenly is called

(1) Nitrogen fixation (2) Pasteurisation

(3) Fertilisation (4) Fermentation

25. An owl can see clearly at night but not day time because it has

(1) more rods and few cones

(2) less rod and more cones

(3) more rods and more cones

(4) less rods and less cones

26. CNG is used for

(1) Power generation (2) Electric generators

(3) Solvent (4) All of these

27. Which of the following is not a characteristic of mixed cropping?

(1) Minimises risk of crop failure

(2) Set pattern of rows

(3) Harvesting and threshing of crops separately is not possible

(4) Individual marketing and consumption of crop is not possible

28. Iron can displace _____ from its salt solution.

(1) Zinc (2) Sodium

(3) Potassium (4) Copper

29. Which of the following statements is true?

(1) Friction is a force that only occurs between solids

(2) Friction is a force that only occurs on rough surfaces

(3) Friction is a force that only occurs when surfaces touch each other

(4) All of these

30. Type of reflection which occurs in diffused or scattered way produces

(1) light image

(2) darker image

(3) detailed outline image

(4) no image

31. If $x^{(3a)^{bc}} = \left\{\left(x^b\right)^a\right\}^c$ $(a, b, c \neq 0)$, then the value of $\frac{3a^{bc-1}}{bc}$ is

(1) $\frac{3^{bc}}{3}$ (2) 3

(3) $\frac{1}{3^{bc}}$ (4) 3^{1-bc}

32. Which of the following numbers is a palindromic number as well as a perfect square?

(1) 98789 (2) 56765

(3) 123454321 (4) 17161

33. The diagonal of a square A is $(x + y)$. The diagonal of a square B with twice the area of A is

(1) $x + 2y$ (2) $2x + y$

(3) $\sqrt{2}\,(x + y)$ (4) $\sqrt{x+y}$

34. A paper is in the form of a rectangle ABCD in which AB = 18 cm and BC = 14 cm. A semicircular position with BC diameter is cut off. The area of the remaining paper is

(1) 160 cm^2 (2) 165 cm^2

(3) 175 cm^2 (4) 180 cm^2

35. The area of the quadrilateral whose sides measure 9 cm, 40 cm, 28 cm and 15 cm and in which the angle between the first two sides is a right angle is

(1) 206 cm^2 (2) 306 cm^2

(3) 356 cm^2 (4) 380 cm^2

36. Angles in a right angled triangle are 30º, 60º, 90º. Find the ratio of the corresponding sides.

(1) 1 : 2 : 3

(2) 1 : $\sqrt{3}$: 2

(3) 1 : 2 : $\sqrt{3}$

(4) 1 : $\sqrt{2}$: $\sqrt{3}$

37. $\left(\frac{256^{16}}{81}\right)^{1/4} =$

(1) $\frac{3y}{4x^4}$ (2) $\frac{2y}{6x^4}$

(3) $\frac{3y}{8x^4}$ (4) $\frac{4y}{5x^4}$

38. The value of $\left(\sqrt[6]{27} - \sqrt{6\frac{3}{4}}\right)^2$ equals

(1) $\frac{\sqrt{3}}{2}$ (2) $\frac{3}{2}$

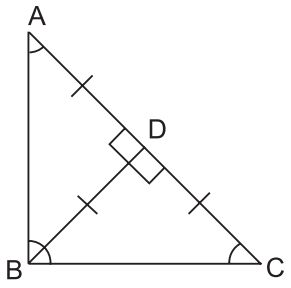
(3) $\frac{\sqrt{3}}{4}$ (4) $\frac{3}{4}$

39. If $\left(a + \frac{1}{a}\right)^2 = 9$, then $a^3 + \frac{1}{a^3}$ equals

(1) $\frac{10\sqrt{3}}{3}$ (2) $3\sqrt{3}$

(3) 18 (4) $7\sqrt{7}$

40. In the given figure BD ⊥ AC, the measure of ∠ABC is



(1) 60º

(2) 30º

(3) 45º

(4) 90º

41. If $x + \frac{1}{x} = 4$, then $x^4 + \frac{1}{x^4} =$

(1) 196 (2) 194

(3) 192 (4) 190

42. If the simple interest on a sum of money at 5% per annum for 3 years is ₹ 1200, find the compound interest on the same sum for the same period at the same rate.

(1) ₹ 1361

(2) ₹ 1261

(3) ₹ 1161

(4) ₹ 1061

43. If ₹ 600 amounts to ₹ 683.20 in two years compounded annually, find the rate of interest per annum.

(1) 5%

(2) 6%

(3) 7%

(4) 8%

44. If a box of sweets is divided among 24 children, they will get 5 sweets each. How many would each get, if the number of the children is reduced by 4?

(1) 4

(2) 5

(3) 6

(4) 7

45. A factory requires 42 machines to produce a given number of articles in 63 days. How many machines would be required to produce the same number of articles in 54 days?

(1) 49

(2) 50

(3) 51

(4) 52

46. If the cost price of 12 pens is equal to the selling price of 8 pens, then the gain percent is

(1) 12%

(2) 30%

(3) 50%

(4) 60%

47. A shopkeeper fixes the marked price of an item 35% above its cost price. The percentage of discount allowed to gain 8% is

(1) 18%

(2) 20%

(3) 22%

(4) 24%

48. A man is walking at the rate of 5 km/hr crosses a bridge in 15 minutes. The length of the bridge is

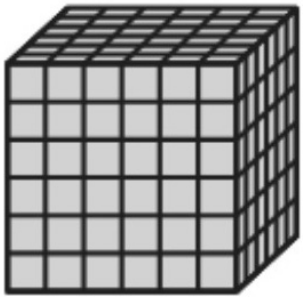
(1) 1000 metres

(2) 1050 metres

(3) 1200 metres

(4) 1250 metres

49. Rajesh has built a cubical water tank with lid for his house, with each outer edge 1.5 m long. He gets the outer surface of the tank excluding the base, covered with square tiles of side 25 cm. Find how much he would spend for the tiles, if the cost of the tiles is ₹360 per dozen.



(1) ₹5400

(2) ₹6400

(3) ₹7400

(4) ₹8400

50. A cistern of capacity 8000 litres measures externally 3.3 m by 2.6 m by 1.1 m and its walls are 5 cm thick. The thickness of the bottom is:

(1) 90 cm

(2) 1 dm

(3) 1 m

(4) 1.1 cm

51. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

(1) $\frac{10}{21}$ (2) $\frac{11}{21}$

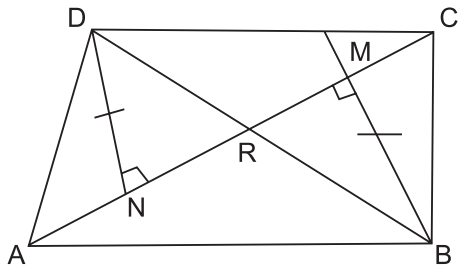
(3) $\frac{2}{7}$ (4) $\frac{5}{7}$

52. What is the probability of getting a sum 9 from two throws of a dice?

(1) $\frac{1}{6}$ (2) $\frac{1}{8}$

(3) $\frac{1}{9}$ (4) $\frac{1}{12}$

53. In quadrilateral ABCD, BM and DN are drawn perpendicular to AC such that BM = DN. If BR = 8cm, then BD is



(1) 4 cm

(2) 2 cm

(3) 12 cm

(4) 16 cm

54. If the length of a rectangle is increased by 10% and the area is unchanged then the corresponding breadth must be decreased by

(1) $9\frac{1}{11}\%$ (2) 10%

(3) 11% (4) $11\frac{1}{9}\%$

55. Factorise: $16(x+y)^2 - 40(x+y)(x-y) + 2y(x-y)^2$

(1) $(x+9y)^2$

(2) $(x-9y)^2$

(3) $(x+3y)^2$

(4) $(x-3y)^2$

56. If water flows from a pipe with height of 5 m and diameter of 86 mm at rate of 6 m/s then volume of water discharged per minute is

(1) 1942.867 liters

(2) 2742.867 liters

(3) 1800 liters

(4) 1742.867 liters

57. What is the area of a trapezoid that has a base of 2 inches, a base of 4 inches and a height of 3 inches?

(1) 6 sq. inches

(2) 24 sq. inches

(3) 9 sq. inches

(4) 36 sq. inches

58. Simple interest on a certain sum of money for 3 years at 8% per annum is half the compound interest on ₹ 4000 for 2 years at 10% per annum. The sum placed on simple interest is

(1) ₹ 1650

(2) ₹ 1750

(3) ₹ 1850

(4) ₹ 1950

59. Factorise: $25a^2 - 4b^2 + 28bc - 49c^2$

(1) $(5a + 2b - 7c)(5a - 2b + 7c)$

(2) $(6a + 2b - 3c)(4a - 2b + 7c)$

(3) $(5a - 2b + 7c)(5a + 3b + 6c)$

(4) $(5a + 4b + 3c)(5a + 4b - 3c)$

60. In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?

(1) 1/3

(2) 3/4

(3) 8/21

(4) 9/21

END OF THE EXAM