SCIENCE

1. Which of the following increases pressure?
   A. Increasing area, increasing force
   B. Decreasing area, increasing force
   C. Decreasing area, decreasing force
   D. Increasing area, decreasing force
2. A sharp knife cuts better than a blunt knife because:
   A. It is heavier
   B. It has a larger surface area
   C. It has a smaller surface area
   D. It is made of steel
3. A man stands on sand. When he lies down, the pressure he exerts:
   A. Increases B. Decreases
   C. Remains the same D. Becomes zero
4. SI unit of pressure is:
   A. Newton B. Pascal
   C. Joule D. Watt
5. A fluid exerts pressure:
   A. Only sideways B. Only upward
   C. Only downward D. In all directions
6. When force is doubled and area remains constant, pressure becomes:
   A. Half B. Double
   C. Same D. Zero
7. Which instrument is used to measure atmospheric pressure?
   A. Hydrometer B. Thermometer
   C. Barometer D. Manometer
8. A wooden block floats on water because:
   A. It has more pressure
   B. Its density is less than water
   C. Water pushes it down
   D. Force of gravity is zero
9. Sucking juice through a straw works because:
   A. Atmospheric pressure pushes the juice up
   B. Gravity pulls the juice up
   C. Pressure inside the straw increases
   D. Juice is lighter than air
10. Hydraulic machines work on principle of:
    A. Newton's First Law
    B. Pascal's Law
    C. Archimedes' Principle
    D. Law of Gravitation
11. Weeds are the:
    (1) main crop plants
    (2) insects and pests
    (3) unwanted plants growing along the crop
    (4) chemical substances
12. Breeding, rearing and management animals for human use is :
    (1) Aniculture (3) Animal culture
    (2) Animal husbandry (4) None of these
13. Which of the following tools would a farmer use to remove weeds from the field?
    (1) Hoe (2) Axe
    (3) Plough (4) Cultivator
14. The system of irrigation wherein water is supplied drop by drop near the roots of plants, is called
    (1) Sprinkler system (2) Pulley system
    (3) Lever system (4) Drip system

Rough Work

15. Examples of kharif crops are
(1) Wheat and maize (2) Gram and maize
(3) Paddy and maize (4) All of these

16. Moat, Dhekli and Rahat are different
(1) Traditional methods of cultivation
(2) Traditional methods of Weeding
(3) Traditional methods of Seed sowing
(4) Traditional methods of irrigation

17. In the harvested crop the grain seed is separated from the chaff. This process id called
(1) Threshing (2) Seeding
(3) Ploughing (4) Weeding

18. Rhizobium bacteria
(1) Help in digestion
(2) Cause diseases
(3) Help in nitrogen fixation
(4) All of these

19. Scientists who study microorganisms are called
(1) microbiologists (2) microscopists
(3) microorganists (4) microtypist

20. Bacteriophage is a :
(1) fungi (2) protozoa
(3) virus (4) bacteria

21. Which of the following statements describes bacteriophage correctly?
(1) It is a bacterium which causes diseases in plants.
(2) It is a type of virus which attacks bacteria.
(3) It is a bacterium which kills viruses.
(4) It can multiply inside both living and non-living cells.

22. The two micro organisms which live in symbiotic association in lichens are
(1) fungus and protozoa
(2) alga and bacteria
(3) bacteria and protozoa
(4) alga and fungus

23. The disease caused by a protozoan and spread by an insect is
(1) dengue (2) malaria
(3) polio (4) measles

24. The process of conversion of sugar into alcohol is known as:
(1) pasteurisation (2) fermentation
(3) decomposition (4) none of these

25. Leprosy is caused by:
(1) bacteria (2) virus
(3) protozoa (4) fungi

26. The cause of whooping cough is
(1) bacteria (2) virus
(3) fungi (4) algae

27. Virus is.
(1) non-living
(2) living as well as non-living
(3) living
(4) none of these

28. Which microorganism causes AIDS?
(1) A protozoa (2) A bacteria
(3) A virus (4) An Algea

29. Bacteria are organisms.
(1) multicellular
(2) unicellular
(3) bicellular
(4) tricellular

Rough Work

30. The disease caused by fungi is
(1) measles (2) chickenpox
(3) polio (4) ringworm

31. Which of the following is NOT a fossil fuel?
(1) Coal (2) Prtroleum
(3) Natural gas (3) Biogas

32. The main constituent of CNG is:
(1) Ethane (2) Porpane
(3) Butane (4) Methane

33. Which zone of a candle flame is the hottest?
(1) Outer zone (2) Middle zone
(3) Innermost zone (4) None of these

34. Which of the following is a non-renewable source of energy?
(1) Wind (2) Solar energy
(3) Coal (4) Hydel power

35. Which product is NOT obtained from coal?
(1) Coke
(2) malaria
(3) Coal gas
(4) none of these

36. Which fraction of petroleum is used as a fuel for heavy vehicles and ships?
(1) Petrol (2) Kerosene
(3) Diesel (4) Bitumen

37. Incomplete combustion of fuels leads to the formation of:
(1) Carbon dioxide (2) Carbon monoxide
(3) Methane (4) Hydrogen

38. Which part of a candle flame is luminous but moderately hot and produces soot?
(1) Outer zone (2) Middle zone
(3) Innermost zone (4) None of these

39. Match the following:
(i) Bitumen
(A) Road surfacing
(ii) Kerosene
(B) Aviation fuel
(iii) Coke
(C) Manufacture of steel
(1) (i-A), (ii-B), (iii-C)
(2) (i-B), (ii-C), (iii-A)
(3) (i-C), (ii-A), (iii-B)
(4) (i-A), (ii-C), (iii-B)

40. A fuel is considered efficient if:
(1) It produces less smoke and residue
(3) It is easily available and cheap
(2) It has high calorific value
(4) All of the above

Maths

41. If 90% of x is 315 km, then the value of x is
(1) 325 km (2) 350 km
(3) 350 m (4) 325 m

42. If a% is the discount percent on a marked price x, then discount is
(1) $\frac{x}{a}\times 100$ (2) $\frac{a}{x}\times 100$
(3) $x\times\frac{a}{100}$ (4) $\frac{100}{x\times a}$

43. A jacket was sold for Rs 1,120 after allowing a discount of 20%. The marked price of the jacket is
(1) Rs 1440 (2) Rs 1400
(3) Rs 960 (4) Rs 866.66

Rough Work

44. If $\frac{7}{3}\%$ of a number is 42, then the number is
(1) 9800 (2) 8
(3) 1800 (4) 180

45. Convert $\frac{4}{5}$ into percent
(1)4% (2)5%
(3) 80% (4)20%

46. If 23% of a is 46, then find a
(1) 100 (2) 200
(3)300 (4)400

47. Which is greatest in $33\frac{1}{3}\%, \frac{4}{15}$ and .35 ?
(1) $33\frac{1}{3}\%$ (2) $\frac{4}{15}$
(3) 0.35 (4) all are equal

48. If the cost price of 8 articles is same as selling price of 10 articles, then the loss percentage is :
(1) 12% (2) 15%
(3) 20% (4) none of these

49. Sum of a - b + ab b + c - bc and c - a - ac is
(1) 2c + ab - ac - bc (2) 2c - ab - ac - bc
(3) 2c + ab + ac + bc (4) 2c - ab + ac + bc

50. Simplify : $(ab+pq)^2 - (ab - pq)^2$
(1) 4 abpq (2) $2a^2b^2 + 2p2q^2$
(3) $2a^2b^2 - 2p2q^2 + 4abpq$ (4) 0

51. Find the value of : $p(p^2 - p - 1)$ for $p = -2$.
(1) -2 (2) -6
(3) -10 (4) 10

52. What least number should be added to 1330 to get number exactly divisible by 43?
(1) 46 (2) 1
(3) 3 (4) 7

53. The smallest number which when divided by 4, 6, 10, 15 gives the same remainder 3 is:
(1) 75 (2) 123
(3) 63 (4) 39

54. $\sqrt{10} \times \sqrt{15}$ is equal to
(1) $5\sqrt{6}$ (2) $6\sqrt{5}$
(3) $\sqrt{30}$ (4) $\sqrt{25}$

55. Which of the following rational numbers lie between $\frac{-3}{7}$ and $\frac{-9}{8}$?
(1) $\frac{-1}{2}$ (2) 0
(3) $\frac{12}{15}$ (4) None of these

56. A linear equation in two variables will have :
(1) Two Solutions (2) One Solution
(3) Infinite Solutions (4) No Solution

57. If $2^x = 8^{(3x - 8)}$, then x = ?
(1) 0 (2) 1
(3) –3 (4) 3

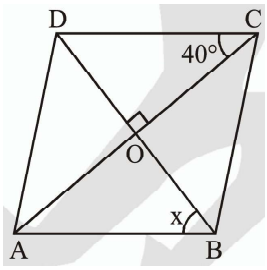
58. The value of x for which is: $\frac{1}{x} = \frac{1}{3} - \frac{3}{x}$, is
(1) 12 (2) –12
(3) 9 (4) 3

59. Thrice a number decreased by 7 gives 89. Find the number.
(1) 32 (2) 30
(3) 31 (4) 29

60. The measure of each exterior angle of a regular pentagon is:
(1) 60° (2) 72°
(3) 90° (4) 180°

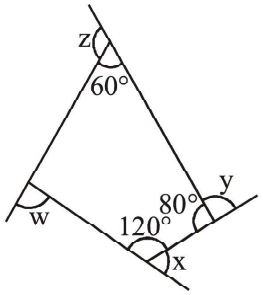
Rough Work

61. In the adjoining figure, ABCD is a rhombus. Find $\angle x$ if $\angle DCO = 40°$.



(1) 40° (2) 50°
(3) 70° (4) None of these

62. In the given figure. Find x + y + z + w



(1) 360° (2) 260°
(3) 100° (4) None of these

63. If $3(x - 2)^2 = 507$ then x can be
(1) 13 (2) 12
(3) 15 (4) 14

64. The value of $\sqrt{\frac{(0.03)^2+(0.21)^2+(0.065)^2}{(0.003)^2+(0.021)^2+(0.0065)^2}}$ is
(1) 0.1 (2) 10
(3) 100 (4) 1000

65. Find the smallest number by which 5400 should be multiplied so that the product is perfect cube.
(1) 2 (3) 5
(2) 3 (4) 15

66. If $\sqrt{86.49}+\sqrt{5+x^2}=12.3$ then x =0
(1) 1 (2) 2
(3) 3 (4) 4

67. Solve : $\sqrt{\sqrt{1225}+\sqrt{1936}+\sqrt{441}}$
(1) 13 (2) 14
(3) 10 (4) 12

68. The largest four digit number which is a perfect cube is:
(1) 8000 (2) 9261
(3) 9999 (4) None of these

69. $\sqrt[3]{\frac{-a^6\times b^3\times c^{21}}{c^9\times a^{12}}}=$
(1) $\frac{-bc^3}{a^2}$ (2) $\frac{bc^4}{a^2}$
(3) $\frac{-ab^4}{c^2}$ (4) $\frac{-bc^4}{a^2}$

70. The value of $\sqrt[3]{x^2(9x-x)}$ is
(1) –2x (2) 2x
(3) 8x (4) 4x

71. If duplicate ratio of 2: 3 is equal to (2x + 3) : (5x-3), then the value of x is:
(1) 13.5 (2) 13
(3) 16.5 (4) 19.5

73. Find the ratio of Rs 20 to Rs 150-
(1) 2:15 (2) 2:13
(3) 2:10 (4)2:9

74. Reduction to lowest terms of $\frac{a^2-b^2}{ab}-\frac{ab-b^2}{ab-a^2}$ is equal to:
(1) $\frac{a}{b}$ (2) $\frac{a^2-b^2}{ab}$
(3) a^2 (4) a - 2b

Rough Work

75. If $x+\frac{1}{x}=8$, then the value of $x^4+\frac{1}{x^4}$:

(1)3842 (2) 3800

(3)3840 (4)3820

76. If $p^2 + q^2 = 35$ and $pq=\frac{15}{2}$ then find the value of 2 $(p + q)^2 - (p - q)^2$ pq = 15/2

(1)60 (2) 120

(3) 80 (4) 100

77. Which of the following is not the reciprocal of $\left(\frac{2}{3}\right)^4$?

(1) $\left(\frac{3}{2}\right)^4$ (2) $\left(\frac{3}{2}\right)^{-4}$

(3) $\left(\frac{2}{3}\right)^{-4}$ (4) $\frac{3^4}{2^4}$

78. The value of $(7^{-1}-8^{-1})^{-1}-(3^{-1}-4^{-1})^{-1}$ is

(1) 44 (2) 56

(3) 68 (4) 12

79. Find the value of $\left(\frac{3}{7}\right)^2 \times \frac{35}{27} \times \left(\frac{-1}{5}\right)^2$:

(1) 2/235 (2) $\frac{1}{105}$

(3) $\frac{20}{123}$ (4) $\frac{3}{100}$

80. Find x, if $3^x = 18 + 3^{x-1}$:

(1) -3 (2) 2

(3)-2 (4) 3

Reasoning

81. In a certain code, ROPE is written as 6821 and CHAIR is written as 73456. How is REACH written in that code?

A) 62537 B) 62437

C) 62573 D) 61473

82. If MANGO is written as 51247, how will AMONG be written?

A) 41527 B) 15724

C) 41572 D) 42517

83. In a certain language, SUN = 54, MOON = 57. What is the code for EARTH?

A) 60 B) 61

C) 64 D) 52

84. If BLUE is coded as GQZJ, how is GREEN coded?

A) LWFJS B) LWFJR

C) LXFJS D) LWJJS

85. If in a certain code A = 26, B = 25, C = 24, ... Z = 1, then the sum of the letters of the word DOG is:

A) 30 B) 55

C) 22 D) 29

86. If '+' means '×','-' means '÷','×' means '-', and '÷' means '+', then find the value of

$8 \div 2 \times 6 - 4 + 2 = ?$

A) 24 B) 30

C) 7 D) 12

87. If 2 ? 3 = 17 and 4 ? 2 = 68, then what is 3 ? 5?

A) 45 B) 52

C) 85 D) 69

88. If A ÷ B means A + B + A×B, then find the value of 6 ÷ 3.

A) 27 B) 18

C) 24 D) 33

Rough Work

89. If 5 * 4 = 45, 6 * 3 = 54, and 7 * 2 = 63, then what is 8 * 1?
A) 81 B) 40
C) 10 D) 72

90. If 9 - 3 + 2 = 27, then 8 - 4 + 3 = ?
A) 36 B) 32
C) 28 D) 24

91. A person walks 5 km north, then 3 km east, and then 2 km south. How far is he from the starting point?
A) 4 km B) 5 km
C) 6 km D) $3\sqrt{2}$ km

92. A starts from point X and walks 4 km north, turns right and walks 3 km, then turns right again and walks 4 km. How far is he from the starting point?
A) 3 km B) 4 km
C) 7 km D) 1 km

93. Rohit walks 6 km west and then 8 km south. How far and in which direction is he from his starting point?
A) 10 km south-west B) 8 km south
C) 10 km west D) 14 km south-west

94. A person faces north. He turns 45° clockwise, then 180° anticlockwise. Which direction is he facing now?
A) West B) South-west
C) North-west D) South-east

95. A man starts from his home, goes 4 km east, turns left and goes 3 km, then again turns left and goes 4 km. How far and in which direction is he from his home?
A) 3 km North B) 3 km South
C) 4 km West D) At the same point

Direction (91-92): Find the missing term.

91. -7.5, 15, -30, 60, ?, 240
(1) 120 (2) –240
(3) –120 (4) 240

96. AB, DEF, HIJK, ?, STUVWX
(1) LMNOP (2) LMNOR
(3) MNOPQ (4) QRSTU

97. 'A' walks 10 metres in front and 10 metres to the right. Then every time turning to his left, he walks 5, 15 and 15 metres respectively. How far is he now from his starting point?
(1) 5 metres (2) 10 metres
(3) 20 metres (4) 25 metres

98. Ram walks 2 km to the East, then he turns to South and walks 6 km. He again turns to East and walks 2 km. Then he tums to North and walks 14 km. How far is he from the starting point?
(1) $6\sqrt{3}$ km (2) $4\sqrt{5}$ km
(3) $5\sqrt{4}$ km (4) $3\sqrt{6}$ km

99. In a certain code language, "TIRED" is written as "56" and "BRAIN" is written as "44". How is "LAZY" written in that code language?
(1) 64 (2) 61
(3) 58 (4) 43

100. In a certain code language, "BAD" is written as "7" and "SAP" is written as "9". How is "BAN" written in the code language?
(1) 8 (2) 3
(3) 4 (4) 6

Rough Work