IMPORTANT INSTRUCTIONS

- The maximum marks are **300.** Time allotted is **90 MINTUES.**
- There are three sections in the question paper having total **75 questions:**
  - Section – A : Maths (25 Questions)
  - Section – B : Science (25 Questions)
  - Section – C : Aptitude (25 Questions)
- Each question carries **4 marks** each
- **Negative Marking** : **1/4 (one-fourth) marks** will be deducted for every incorrect answer.
- **Use only BLUE/BLACK pen to fill the circles in bubble sheet.**
- Use of pencil is strictly **not allowed.**
- **Do not use marker or white fluid** to hide the mark.

Section – I
Mathematics

1. Which of the following is true with respect to – 28 and – 32?
(a) – 28 < - 32 (b) – 28 = - 32 (c) – 32 > - 28 (d) – 28 > - 32

2. Which pair of numbers does not have a product equal to 36?
(a) $[-4, -9]$ (b) $[-3, -12]$ (c) $[-1, -72]$ (d) $[1,\ 36]$

3. What should be added to $\frac{21}{27}$ to make it $\frac{26}{27}$?
(a) $\frac{26}{27}$ (b) $\frac{6}{27}$ (c) $\frac{5}{27}$ (d) $\frac{7}{27}$

4. $\frac{1}{9}$ of a number is 5. What is the number?
(a) 5 (b) 9 (c) 14 (d) 45

5. The quotient when 0.00639 is divided by 0.213 is _____
(a) 0.3 (b) 0.03 (c) 0.003 (d) 3

6. What is the median of the data
46, 64, 87, 41, 58, 77, 35, 90, 55, 33, 92
(a) 87 (b) 77 (c) 58 (d) 60.2

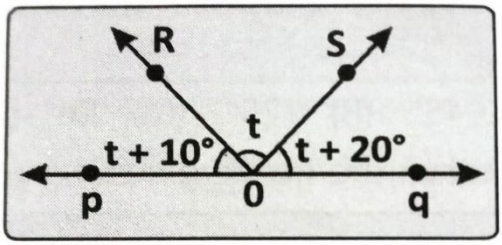
7. The solution of the equation 10 – 3y = 1 is y = _____
(a) 0 (b) 1 (c) 2 (d) 3

8. The mean of 6, y, 7, x and 14 is 8. Which of the following is true?
(a) $x + y = 13$ (b) $2x + 3y = 13$ (c) $x - y = 13$ (d) $x^2 + y^2 = 15$

9. If two supplementary angles differ by 44°, then one of the angles is _____
(a) 102° (b) 65° (c) 112° (d) 72°

10. What do we call a 169° angle?
(a) An obtuse angle (b) an acute angle (c) a right angle (d) a zero angle

11. In the given figure, what is the value of $\angle t$?



(a) 30° (b) 40° (c) 50° (d) 60°

12. In a ΔPQR, PQ = PR and $\angle Q$ is twice that of $\angle P$. What is the measure of $\angle Q$?

(a) 72° (b) 36° (c) 144° (d) 108°

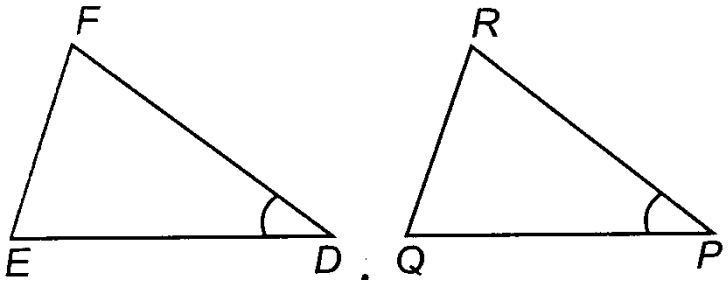
13. Find the perimeter of a rectangle whose length is 28 cm and diagonal is 35 cm?

(a) 90 cm (b) 45 cm (c) 89 cm (d) 98 cm

14. If 20 : 5 :: P : 1, What is the value of P?

(a) $\frac{1}{5}$ (b) 4 (c) 5 (d) 1

15. If you want to prove that $\Delta FED \cong \Delta RQP$ using the SAS criterion where $\angle D = \angle P$, then which of the following you need more?



(a) FD = QP (b) QP = ED (c) FD = RP (d) both (b) and (c)

16. 150% of a number is 900. What is the number?

(a) 450 (b) 600 (c) 1350 (d) 1800

17. What percent of 1 day is 36 minutes?

(a) 25% (b) 2.5% (c) 3.6% (d) 0.25%

18. What is the number of medians in a triangle?

(a) 0 (b) 2 (c) 3 (d) 1

19. What number should be added to $\frac{-5}{6}$ to get $\frac{3}{2}$?

(a) $\frac{-7}{3}$ (b) $2\frac{1}{3}$ (c) $\frac{8}{3}$ (d) $\frac{-8}{3}$

20. How many pieces of equal size can be cut from a rope of 30 metres long, each measuring $3\frac{3}{4}$ metres?

(a) 8 (b) 10 (c) 6 (d) 12

21. If the ratio of circumferences of two circles is 4 : 9, what is the ratio of their areas?

(a) 9 : 4 (b) 16 : 81 (c) 4 : 9 (d) 2 : 3

22. Solve $9^{2x} = 729$

(a) $x = \frac{3}{4}$ (b) $x = \frac{2}{3}$ (c) $x = \frac{5}{6}$ (d) $x = \frac{3}{2}$

23. The perimeter of rectangular piece of paper is 56 cm. if the length is there times its width, what is its width?

(a) 8 cm (b) 56 cm (c) 7 cm (d) 21 cm

24. What is the coefficient of y in the expression 3xy – 13?

(a) $3x$ (b) 3 (c) – 13 (d) either (a) or (b)

25. If $\left(\frac{5}{3}\right)^{-5} \times \left(\frac{5}{3}\right)^{11} = \left(\frac{5}{3}\right)^{8+x}$, then x = ?

(a) $\frac{-1}{2}$ (b) – 2 (c) 2 (d) $\frac{1}{2}$

Section – II
SCIENCE

26. Which of the following show symbiosis?

A. Alga and fungus

B. Alga and fish

C. Rhizobium and pea plant

D. Rhizobium and money plant

(a) A and B (b) B and C (c) A and C (d) C and D

27. The process by which huge rocks are broken down into small particles by the action of sun's heat, wind, rain and flowing water, etc., is called:

(a) farming (b) smothering (c) erosion (d) weathering

28. Which type of soil can lead to the maximum water-logging in the fields?

(a) loamy soil (b) clayey soil (c) sandy soil (d) sandy-loam soil

29. A piece of fabric burns by giving a smell of burning hair. It is made up of:

(a) natural silk (b) artificial silk (c) natural silk or wool (d) natural wool

30. Which of the following is not a method of transfer of heat?

(a) conduction (b) radiation (c) convention (d) convection

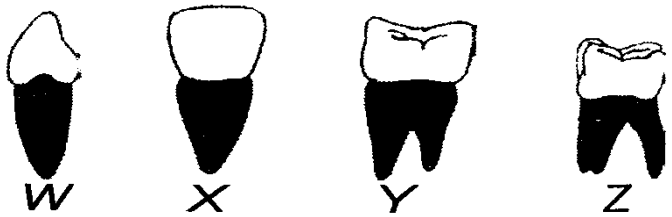
31. The filtering unit in the human excretory system is called:

(a) nephron (b) neuron (c) nephridia (d) kidneyon

32. An athlete attains a maximum speed of 36 km/ h. This speed is equal to:

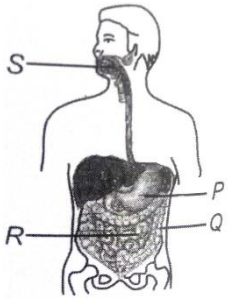
(a) 5 m / s (b) 10 m / s (c) 15 m / s (d) 20 m / s

33. The given figures show different types of teeth. Which of these is used for biting and cutting of food?



(a) X (b) W (c) Both W and Y (d) Both Y and Z

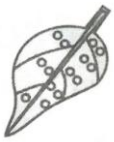
34. The given figure shows human digestive system. In which labelled part digestion of fat is completed?



(a) P (b) R (c) S (d) Q

35. Which of the following stages in the life history of a silk moth produces silk fibres?

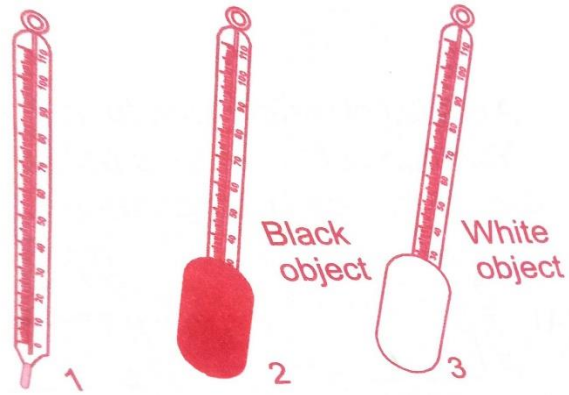
(A) 

(B) 

(C) 

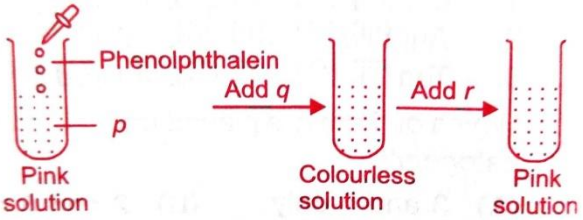
(D) 

36. Rohan wants to test whether a white object or a black object would heat up faster in the Sun. The given picture shows you his experiment. These thermometers were left out in the Sun for 30 minutes. Which of the following statements is true?



(a) Thermometer 1 reads the same as thermometer 3.
(b) Thermometer 2 shows a higher temperature than thermometer 3.
(c) Thermometer 3 shows a higher temperature than thermometer 1.
(d) Thermometer 1 reads the same as thermometer 2.

37. Kartik performed the following experiment by taking few solutions and phenolphthalein indicator. Identify p, q and r in his experiment.



(a) p → Acid, q → Acid, r → Base
(b) p → Base q → Acid, r → Base
(c) p → Base q → Base, r → Acid
(d) p → Base q → Acid, r → Acid

38. Consider the following statements (I – IV) and fill in the blanks by selecting the appropriate option.

I. An antacid such as *P* is used to cure indigestion.

II. Lime water contains Q, which turns milky with carbon dioxide.

III. Soap solution is basic due to presence of R. It turns turmeric stain of shirt to red

IV. Baking soda is S which reacts with vinegar to evolve carbon dioxide gas.

	(P)	(Q)	(R)	(S)
(A)	Milk of magnesia	Calcium hydroxide	Sodium hydroxide	Sodium hydrogen carbonate
(B)	Calcium hydroxide	Milk of magnesia	Sodium hydroxide	Sodium hydrogen carbonate
(C)	Sodium hydroxide	Sodium hydrogen carbonate	Calcium hydroxide	Milk of magnesia
(D)	Sodium hydrogen carbonate	Calcium hydroxide	Milk of magnesia	Sodium hydroxide

39. Match column I with column II and select the correct option from the codes given below.

	Column I	Column II
(P)	Expansion of metals of heating	(i) Neither physical nor chemical change
(Q)	A stone kept in the sunlight	(ii) Chemical change
(R)	Burning of candle	(iii) Combination of physical and chemical changes
(S)	Curdling of milk	(iv) Physical changes

(a) (P) – (iv), (Q) – (i), (R) – (iii), (S) – (ii)
(b) (P) – (iv), (Q) – (iii), (R) – (ii), (S) – (i)
(c) (P) – (i), (Q) – (ii), (R) – (iii), (S) – (iv)
(d) (P) – (i), (Q) – (iv), (R) – (ii), (S) – (iii)

40. Observe the given reaction sequence carefully.

Acetic acid + Sodium hydrogencarbonate → Sodium acetate + Water + (i)

(i) + $Ca(OH)_2$ → (ii) Water

What could (i) and (ii) be?

	(i)	(ii)
(A)	$CaCO_3$	CO_2
(B)	H_2O	$CaCO_3$
(C)	CO_2	$CaCO_3$
(D)	H_2O	CO_2

41. High speed winds at a place result in

(a) Increased pressure (b) Reduced pressure

(c) Water vapour (d) Static electricity

42. A tornado is

(a) Uneven heating between two regions

(b) A violent, twisting funnel of wind

(c) Strong circulatory winds in the tropical region

(d) None of these

43. Consider the following statements and select the option which correctly identifies true (T) and false (F) ones.

(i) In cockroaches, air enters the body through spiracles.

(ii) During heavy exercise, we get cramps in the legs due to accumulation of carbon dioxide.

(iii) Normal range of breathing rate per minute in an average adult person at rest is 12-18.

(iv) During exhalation, the ribs move upwards.

	(i)	**(ii)**	**(iii)**	**(iv)**
(A)	F	T	F	T
(B)	T	T	F	T
(C)	T	F	T	F
(D)	T	T	T	F

44. Read the given passage and select the correct option for (i) – (iii).

(i) are present in the chest cavity. This cavity is surrounded by (ii) on the sides which form a cage-like structure. A large muscular sheet called (iii) forms the floor of the chest cavity.

(a) (i) – Lungs; (ii) – Ribs; (iii) – Diaphragm

(b) (i) – Diaphragm; (ii) – Ribs; (iii) – Lungs

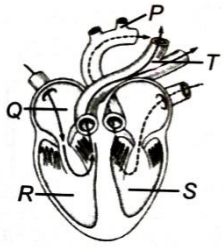
(c) (i) – Bronchi; (ii) – Ribs; (iii)- Lungs

(d) (i) – Trachea; (ii) – Bronchi; (iii) - Lungs

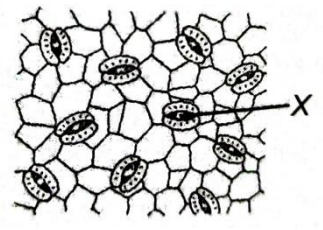
45. Refer to the given figure, Identify the part which carries oxygenated blood.

(a) P, Q, R and S (b) P and T

(c) P and S (d) R and T



46. The labelled part X in the given diagram helps plants to_____.



(i) Take in oxygen (ii) Take in water vapour (iii) Give out oxygen (iv) Give out water vapour

(a) (i) and (ii) only (b) (i) and (iii) (c) (ii) and (iii) only (d) (i), (iii) and (iv) only

47. Consider the following statements and select the option which correctly identifies true (T) and false (F) ones.

(i) Ovary ripens to form seed and ovule ripens to form fruit after fertilisation.

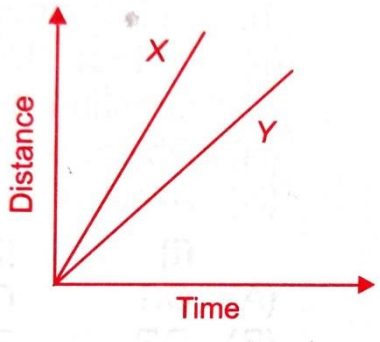
(ii) Seed dispersed through water usually develops floating ability in the form of spongy or fibrous outer coat as in coconut.

(iii) Pollination occurs before fertilisation.

(iv) Cutting, layering, grafting and tissue culture are the natural methods of vegetative propagation.

	(i)	**(ii)**	**(iii)**	**(iv)**
(A)	F	F	T	F
(B)	F	T	T	F
(C)	T	T	T	F
(D)	F	T	T	T

48. The figure shows the distance-time graph for the motion of two cars X and Y. Which one of them is moving faster?



(a) X (b) Y

(c) Both are moving with same speed (d) Y is faster initially, then X gets faster.

49. When the strength of the current flowing through a coil is increased, then which of the following statements is true?

(a) Strength of the magnetic field decreases.

(b) Strength of the magnetic field increases.

(c) Amount of heat generated due to resistance decrease.

(d) Strength of the magnetic field remains constant.

50. Consider the following statements and select the correct option which correctly identifies true (T) and False (F)

(i) Concave mirror is used for side view mirror in vehicles.

(ii) The image formed by a plane mirror is upright.

(iii) When a person moves closer to a plane mirror, the size of his image in the mirror remains the same.

(iv) In the case of reflection, virtual image of the object is formed on the same side as the object.

	(i)	**(ii)**	**(iii)**	**(iv)**
(A)	T	F	F	T
(B)	F	T	T	F
(C)	F	T	F	T
(D)	T	F	T	F

Section – III
Mental Ability

51. Harsh starts walking straight facing south. After 15 metres, he turned to his right, walked 10 metres and turned to his left. Again after walking a distance of 5 metres, he turned to his left. Which direction is he facing now?

(a) west (b) east (c) north – east (d) South - west

52. Pointing to kartik ,Vivan said, "His mother's brother is the father of my son Nitin." How is kartik related to Vivan?

(a) Uncle (b) Brother (c) North – east (d) South – west

53. Find the missing number, if a certain rule is followed row-wise or column wise

(a) 4 (b) 8

(c) 12 (d) 16

6	6	8
5	7	5
4	3	?
120	126	320

54. Mohit ranks 16th from the top and twelfth from the bottom in the class. How many students are there in the class?

(a) 29 (b) 28 (c) 27 (d) None of these

55. In a certain code language, "EMPLOYEES" is written as "DLOKOXDER". How will 'FURNITURE' be written in the same language?

(a) ETQMJSTQB (b) GTPNISTQF (c) ETQMISTQD (d) GTPNISTRE

56. If NOIDA is written as 39658, how will INDIA be written?

(a) 36568 (b) 63569 (c) 63568 (d) 65368

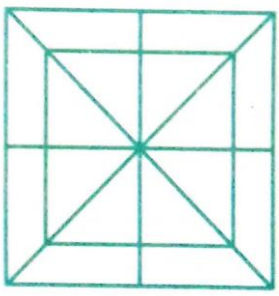
57. P is Y's brother. Y is Q's father. Q and X are sisters. How is X related to P?

(a) Niece (b) cousin (c) aunt (d) nephew

58. Which of the following words will come in second place, if all of them are arranged alphabetically as in a dictionary?

(a) crude (b) crumb (c) cruise (d) crupper

59. How many triangles are there in the given figure?

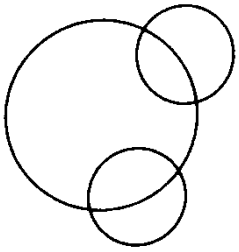


(a) 26 (b) 28 (c) 22 (d) 32

60. If '×' denotes (-), (+) denotes (÷), (-) denotes (+) and (÷) denotes (×), then what is the value of 136 + 4 ÷ 5 – 68 × 7?

(a) 165 (b) 146 (c) 173 (d) 163

61. Which of the following options best illustrates the given venn diagram?



(a) Animals, Elephants, Wolves
(b) Graduates, Teachers, Human beings
(c) Bricks, Houses, Bridges
(d) Vehicles, Buses, Cars

62. Which of the following is third to the left of the eighteenth digit from the left end of the given arrangement?

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 5 8 4 8 1 2 7

(a) 8 (b) 3 (c) 4 (d) 5

Directions (63- 65) : In each of the following questions, a series is given. A term in series is missing. Find the missing term from the options.

63. 0.5, 1.5, 4.5, 13.5, ?

(a) 45.5 (b) 39.5 (c) 30.5 (d) 40.5

64. 18, 17, 19, ?, 20, 15, 21, 14.

(a) 16 (b) 17 (c) 18 (d) 19

65. 1, 3, 7, 13, ?, 31.

(a) 16 (b) 21 (c) 20 (d) 19

Directions (66 – 70) : To establish the same relationship between two pair of terms on either side of " :: ", Choose the set of terms that will replace the mark. (?)

66. JM : LO : : GJ : ?

(a) HK (b) IL (c) IK (d) IM

67. BF : HL : : EI : ?

(a) KN (b) KO (c) JN (d) JO

68. 8 : 64 :: 25 : ?

(a) 125 (b) 625 (c) 521 (d) 137

69. 21 : 3 :: 574 : ?

(a) 23 (b) 113 (c) 91 (d) 82

70. 42 : 20 : : 64 : ?

(a) 33 (b) 32 (c) 31 (d) 34

71. If 'cook' is called 'driver', 'driver' is called 'manager', 'manager' is called 'teacher', 'teacher' is called 'clerk' and 'clerk' is called 'principal' who will teach in a class?

(a) cook (b) clerk (c) teacher (d) driver

72. If BEAUTY is written as CFBTSX, then how will FLOWER be coded in that language?

(a) EKNVDQ (b) EKNXFS (c) GMPVDQ (d) GMPXFS

73. If P stands for '+', Q stands for (÷), r stands for (-) and 's' stands for '×', then find the value of 600s 900 q 2700 p 800 r 1000

(a) 0 (b) 1 (c) 2 (d) 3

74. What is the largest seven-digit number that can be formed using the given below digits?

0, 7, 2, 4, 9, 8, 3

(a) 9874320 (b) 0987432 (c) 9874302 (d) 9820347

75. Which of the following signs are missing?

24 _ 2 _ 3 _ 5 = 7

(a) −, ×, − (b) +, ×, − (c) − , + , × (d) ÷, +, −