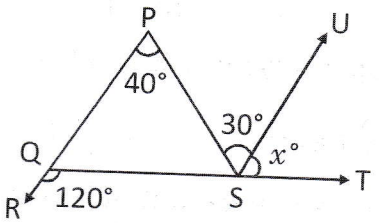
Class : 7 **Mathematics**

01 Identify the option that replaces the question mark of $\frac{4}{9} \div ? = \frac{-5}{6}$.

(A) $\frac{-32}{45}$ (B) $\frac{-3}{5}$ (C) $\frac{-9}{10}$ (D) $\frac{-8}{15}$

02 Identify the measure of 'x' from the given figure.



(A) 50° (B) 60°

(C) 70° (D) 85°

03 Suppose x and y are non zero real numbers such that $\frac{3x+y}{x-3y} = -2$. Choose the value of $\frac{x+3y}{3x+y}$.

(A) –3 (B) –1

(C) 1 (D) 2

Space for rough work

04 The sum of three consecutive integers is 186. Identify the largest of these three integers.

(A) 62 (B) 63

(C) 64 (D) 65

05 By what number should the expression $12xy$ be divided to get $4y$?

(A) $3y$ (B) $3x^2$

(C) $3xy$ (D) $3x$

06 A shopkeeper buys two bags of tea, one containing $3\frac{3}{4}$ kg and the other containing $24\frac{1}{4}$ kg. He mixed the tea together and packed it in 40 equal packets. How much tea is contained in each equal packet ?

(A) $\frac{37}{40}$ kg (B) 1 kg (C) $\frac{7}{10}$ kg (D) $\frac{17}{20}$ kg

Space for rough work

07 Given below are the measures of two angles of a triangle. Which one can be the measures of an acute angled triangle ?

(A) 45°, 45° (B) 35°, 45°

(C) 30°, 40° (D) 25°, 75°

08 The areas of squares P and Q are in the ratio 4 : 9. If the area of P is 144 sq cm, find the perimeter of Q.

(A) 17 cm (B) 72 cm

(C) 27 cm (D) 324 cm

09 If 'a', 'b', 'c' and 'd' are four consecutive multiples of 8 and $a < b < c < d$, what is the value of $(a - c)(d - b)$?

(A) –256 (B) 16

(C) 256 (D) –16

10 A number is increased by 25% and then decreased by 20%. What percent of the original number is the resultant number ?

(A) 105 (B) 100

(C) 120 (D) 125

Space for rough work

11 Choose the result of

$(0.625 \times 0.625 + 2 \times 0.625 \times 0.375 + 0.375 \times 0.375)$

(A) 0.125 (B) 1

(C) 1.125 (D) 2.375

12 If $x^2 = -1$, then select the simplest value of x^{2024}.

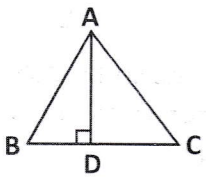
(A) 1 (B) -1 (C) x (D) -2024

13 Select the equivalent of $9^{4.5} : 3^7$.

(A) 9 : 1 (B) 3 : 1

(C) 9 : 2 (D) 3 : 2

14 In the figure find the measure of $\angle BAC$ if $\angle ABD = \angle CAD$ and $\angle BAD = \angle ACD$.

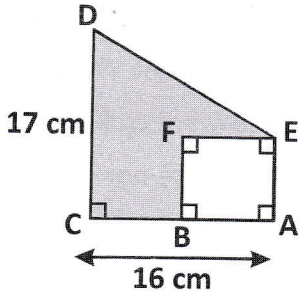


(A) 120° (B) 60°

(C) 75° (D) 90°

Space for rough work

15 **In the given figure, ABFE is a square and B is the midpoint of line segment AC. Find the area of the shaded region, in cm^2.**



(A) 64 (B) 136

(C) 200 (D) 256

16 **Which of the following values are equal ?**

(i) 1^5 **(ii)** 0^5 **(iii)** 5^0 **(iv)** 5^1

(A) (i) and (ii) (B) (i) and (iii)

(C) (i) and (iv) (D) (ii) and (iv)

17 **Find the fourth proportional of** $\frac{13}{3}, \frac{39}{4}, \frac{17}{2}$.

(A) $\frac{153}{8}$ (B) $\frac{143}{8}$ (C) $\frac{133}{8}$ (D) $\frac{143}{4}$

Space for rough work

18 **Choose the option which has no line of symmetry.**

(A) Scalene triangle (B) Isosceles triangle

(C) Equilateral triangle (D) All of the above

19 **If lines AB, AC, AD and AE are parallel to a line 'l', then**

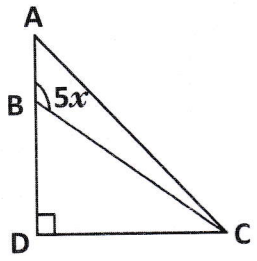
(A) A, B, C, D and E are collinear points

(B) A, B, C, D and E are non-collinear points

(C) AB & AC are parallel and AD & AE are perpendicular

(D) AB = BC = CD = DE = EA

20 **Which of the following could be a value of x in the given figure ?**



(A) 30° (B) 50°

(C) 40° (D) 10°

Space for rough work

21 Choose the result of $\left(\frac{1}{2}-\frac{3}{4}\right)\left(\frac{1}{4}+\frac{1}{2}\times\frac{3}{4}+\frac{9}{16}\right)$.

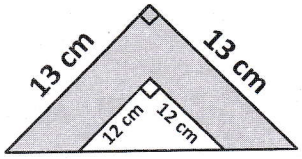
(A) $\frac{-19}{64}$ (B) $\frac{1}{64}$ (C) $\frac{-1}{32}$ (D) $\frac{-5}{32}$

22 Select the sum of interior angles of a pentagon.

(A) 720° (B) 630°

(C) 540° (D) 450°

23 The diagram shows two isosceles right-triangles with sides as marked. What is the area of the shaded region ?



(A) 8 cm^2 (B) 10 cm^2

(C) 12.5 cm^2 (D) 15 cm^2

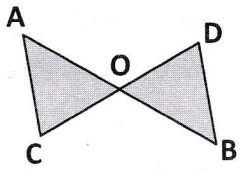
Space for rough work

24 **The length and breadth of a rectangular field are in the ratio 3 : 2. If area of the field is 3750 sq.m. Find the cost of fencing the field at ₹ 24.76 per metre.**

(A) ₹ 18540 (B) ₹ 24658

(C) ₹ 6190 (D) ₹ 619000

25 **$\overline{AB}$ and $\overline{CD}$ bisect each other at O. Which of the following statement is true ? $\left(\text{If } \overline{AB} \neq \overline{CD}\right)$**

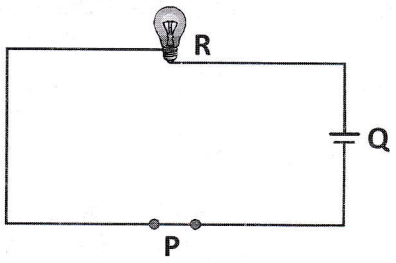


(A) $\overline{AB} \cong \overline{CD}$ (B) $\overline{AO} \cong \overline{OD}$

(C) $\overline{AO} \cong \overline{BO}$ (D) $\overline{CO} \cong \overline{CD}$

Space for rough work

26 **Observe the electric circuit diagram given below.**



Read the given statements.

(i) **Component P is in ON position. So, current will flow through the circuit.**

(ii) **Electric current flows from component Q to the component R.**

(iii) **The component R has nichrome element in order to last longer.**

Which of them is/are correct ?

(A) (i) and (iii) only (B) (ii) and (iii) only

(C) (i) and (ii) only (D) all of the above

27 **The average speed of a motorist on a journey is the**

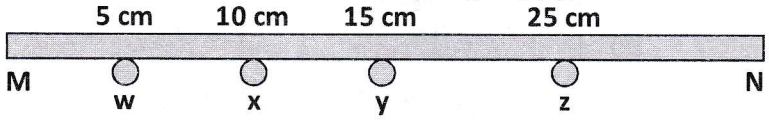
(A) total time taken for the journey divided by the total distance of the journey.

(B) average of the fastest and the slowest speeds.

(C) average of the initial and the final speeds.

(D) total distance travelled divided by the total time taken for the journey.

28 **Given below is a metal rod of length 50 cm. 4 drops of wax, w, x, y and z are placed at the distance of 5 cm, 10 cm, 15 cm and 25 cm respectively from the end M. Look at the diagram carefully and answer the questions.**



When heated from the end M, drop w falls off first in 2 minutes time. What will be the time taken for the drops x, y and z to fall in minutes ? Assume rate of heat flow is inversely proportional to the distance of heat flow.

(A) 4, 6, 10 (B) 3, 9, 12

(C) 5, 10 , 15 (D) 6, 12, 18

29 **A student carried out an experiment and found out that nichrome wire was the best material she had for making a heating coil. Which variable did she change while conducting her experiments ?**

(A) Length of the wire (B) Number of batteries

(C) Number of bulbs (D) Material of the wire

30 **A boy rides a bicycle and travels at 50 km/h for 2 hours. The remaining 30 km is covered at 60 km/h. What is the average speed of the bicycle ?**

(A) 55 km/h (B) 50 km/h

(C) 52 km/h (D) 65 km/h

Space for rough work

31 **Four students W, X, Y and Z each had a glass filled with the same amount of water. They put 10 ice cubes of similar size into each of their glasses. Each of them used a different method to prevent their ice cubes from melting. Which student's action is correct ?**

(A) Student W wrapped her hands tightly around her glass.

(B) Student X wrapped his glass with a plastic sheet.

(C) Student Y covered the glass and wrapped it with a cold towel.

(D) Student Z covered the glass and wrapped his glass with newspaper.

32 **Identify the most suitable metal for core of an electromagnet and its application.**

	Core	Application
(A)	Soft iron	Electric bell
(B)	Brass	Electric iron
(C)	Aluminium	Speaker
(D)	Steel	Crane

33 **If an object moves with a constant speed, the distance-time graph is a**

(A) straight line.

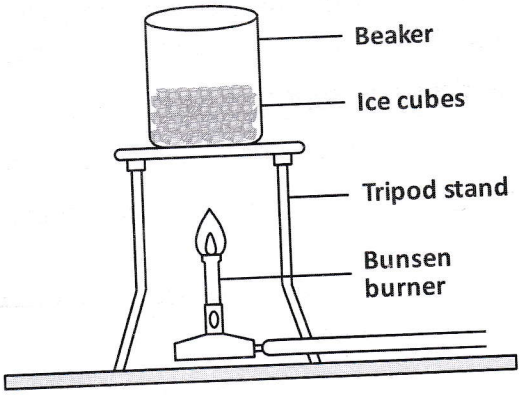
(B) curved line.

(C) horizontal line to time axis.

(D) parallel line to velocity axis.

Space for rough work

34 **The figure given below is used to find out if the amount of heat will affect the time taken for the ice cubes to melt.**



Number of Bunsen burners	1	2	3	4
Time taken for the ice cubes to melt (min)	7	5	3	1

Which of the following statements about the experiment is correct ?

(A) The number of Bunsen burners should not be changed

(B) The time taken for the ice cubes to melt when there were 3 Bunsen burners should be 9 min

(C) When more Bunsen burners were used, the ice cubes melted quickly

(D) When more Bunsen burners were used, the ice cubes took a longer time to melt

Space for rough work

35 **Three identical bulbs are already connected in an electric circuit in a straight line with two cells and a fourth similar bulb is also connected to the same circuit in the same way, Brightness of bulbs decreases**

(A) when the bulbs are connected in a straight line.

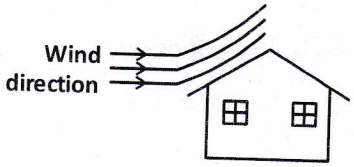
(B) as the voltage decreases.

(C) when the bulbs are connected in parallel.

(D) both (A) and (B)

Space for rough work

36 **Observe the figure shown below.**



What do you think will happen to the tinned or straw roofs on the house if a strong wind blows in the direction shown ?

(A) The occupants will hear the howling sound of the wind.

(B) The electrical supplies will be disrupted.

(C) The roof will be lifted up.

(D) The roof will fall.

37 **The pH of an aqueous solution of hydrochloric acid is 2. What will be the pH of the acid after the addition of 10 g of sodium chloride ?**

(A) 1 (B) 2

(C) 7 (D) 9

Space for rough work

38 **Which of the following statements is true when milk changes into curd ?**

(A) It changes from liquid to semi-solid.

(B) There is a change in taste.

(C) Curd cannot be changed to milk.

(D) All of the above

39 **Which gas/solution produces hydrogen ions when dissolved in water ?**

(A) Dry Cl gas

(B) NaOH solution

(C) Na_2SO_4 solution

(D) Aqueous solution of HCl

40 **In a pressure kerosene stove**

I. we pump kerosene and convert it into vapours.
II. the vapours burn to produce flame.

Which of the following is true about the above statements ?

(A) I is a chemical change; II is a physical change

(B) I is a physical change; II is a chemical change

(C) Both I and II are physical changes

(D) Both I and II are chemical changes

Space for rough work

41 **Non-metals react with oxygen to form respective non-metallic oxides. Which non-metallic oxide on hydrolysis gives only a strong acid ?**

(A) Sulphur dioxide (B) Carbon dioxide

(C) Sulphur trioxide (D) Nitrogen dioxide

42 **A concentrated sugar solution on cooling formed different shapes. Identify the process.**

(A) Crystallisation (B) Evaporation

(C) Galvanisation (D) Expansion

43 **A boy dissolved the following substances in water separately.**

P - Tooth paste **Q - Milk of magnesia**

R - Vinegar **S - Shower cream**

Which dissolved substances will turn red litmus blue ?

(A) P only (B) Q and R only

(C) P, Q, and S only (D) P, R and S only

Space for rough work

44 **Read the statements in the box given below.**

I.	Switching on a water filter
II.	Making yoghurt at home
III.	Ripening of fruits
IV.	Magnetising a piece of iron

Which of them are examples of physical changes ?

(A) I and IV only (B) II and III only

(C) III and IV only (D) All of the above

45 **A paper strip held between one's thumb and forefinger moves upward on blowing air over it because air pressure**

(A) above the strip increases.

(B) above the strip decreases.

(C) above the strip becomes zero.

(D) below the strip becomes zero.

Space for rough work

46 **Study the characteristics of an organism given below.**

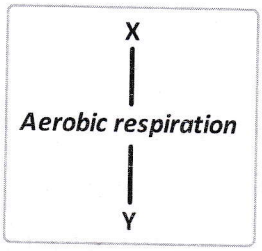
- It is a microorganism.
- It shows saprophytic mode of nutrition.
- It feed on dead and decaying organic matter for its food.

Based on the above information identify the organism.

(A) Mucor (B) Pitcher plant

(C) Amoeba (D) Venus flytrap

47 **Study the figure given below.**



Name the organism X and the process Y involved respectively.

(A) Yeast, normal diffusion

(B) Frog, cutaneous

(C) Earthworm, pulmonary

(D) Plants, transpiration

Space for rough work

48 **Which of the following is not true about insectivorous plants ?**

(A) They are green in colour and syntheize their own food.

(B) They do not undergo photosynthesis.

(C) They grow in those soils which do not contain sufficient nitrogen mineral.

(D) They feed on insects to get their nitrogen nutrition.

49 **Match the columns.**

	Column I		Column II
a.	Erythrocytes	1.	Pale yellow
b.	Blood plasma	2.	Plasma without clotting factors
c.	Serum	3.	Red blood cells
d.	Spleen	4.	White blood cells
e.	Leucocytes	5.	Graveyard of RBC's

(A) a - 1; b - 2; c - 3; d - 4; e - 5

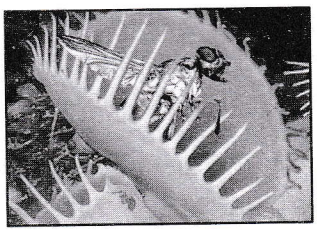
(B) a - 3; b - 1; c - 2; d - 5; e - 4

(C) a - 5; b - v; c - 3; d - 2; e - 1

(D) a - 2; b - 3; c - 4; d - 5; e - 1

Space for rough work

50 **The figure of an insectivorous plant is given below.**



Identify the purpose for which this plant undergo movement.

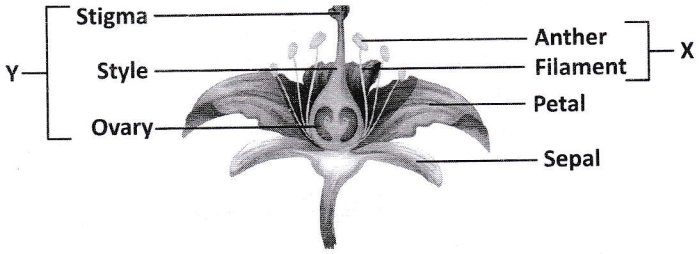
(A) To obtain support.

(B) To obtain nutrients.

(C) To protect themselves from touch.

(D) To disperse seeds.

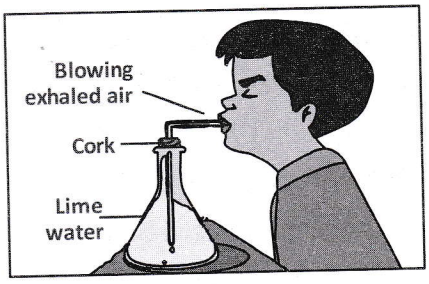
51 **Observe the given diagram of a flower.**



Identify the parts X and Y in the above figure.

	X	Y
(A)	Pistil	Stamen
(B)	Sepals	Petals
(C)	Stamen	Pistil
(D)	Stamen	Petal

52 **Study the diagram given below.**



What can be inferred from the above activity ?

(A) The lime water turns milky.

(B) The process of exhalation during respiration is tested.

(C) Presence of CO_2 can be tested by turning limewater milky.

(D) All of the above

53 **Which of the following parts of digestive system secretes HCl ?**

(A) Oesophagus (B) Pharynx

(C) Stomach (D) Mouth

54 **The specialized roots that respire are seen in:**

(A) In deserts (B) Gardens

(C) Mangroves (D) On land

55 **Identify the pigment present in red blood cells of the blood that helps to transport oxygen.**

(A) Anthocyanin (B) Melanin

(C) Haemoglobin (D) Carotene

56 **You accidentally break a vase in your neighbour's house while playing. What should you do ?**

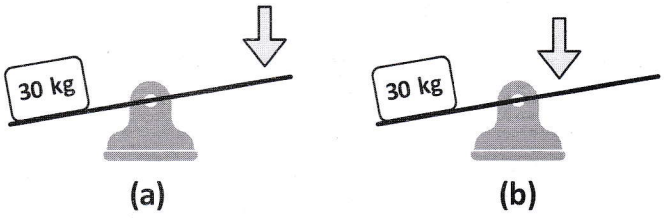
(A) Pretend it didn't happen and leave without saying anything.

(B) Run away from your neighbour's house and avoid them.

(C) Confess to your neighbor about the accident and offer to help pay for a replacement.

(D) Blame someone else for the broken vase.

57 **Which of the two levers will require more force to lift the weight ?**



(a) (b)

(A) The first lever

(B) The second lever

(C) They both require the same force

(D) Cannot tell

Space for rough work

58 Which option will replace the question mark ?

If  and  and  and  and   = ?

(A) 

(B) 

(C) 

(D) 

59 In the following string, you are allowed to swap any two adjacent (neighboring) digits. What is the minimum number of such swaps you will have to make so that all 5s come together ? (Note : It is not necessary that 5 has to be at the beginning or the end) 51156575

(A) 3

(B) 4

(C) 5

(D) 6

Space for rough work

60 **In the following question a statement is given, followed by two conclusions. Give answer:**

Statements :

Irregularity is a cause for failure in exams.

Some regular students fail in the examinations.

Conclusions :

(I) All failed students are regular.

(II) All successful students are not regular.

Choose the correct option.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Either I or II follows.

(D) Neither I nor II follows.

Space for rough work