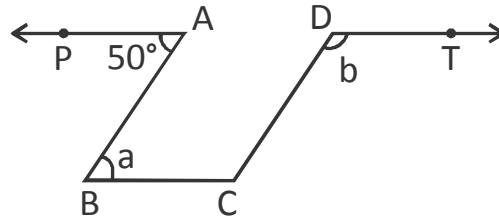
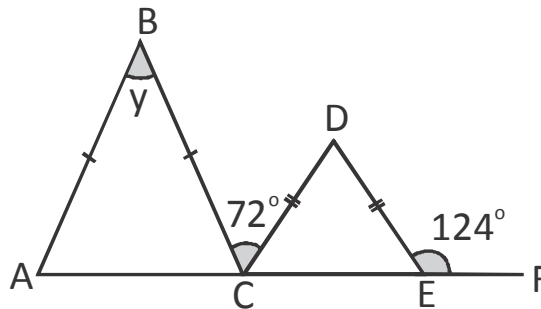


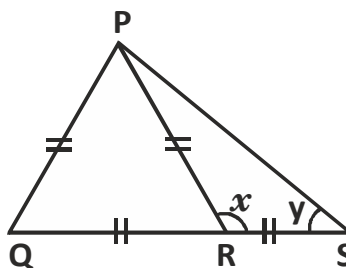
1. In the given figure, $PA \parallel BC \parallel DT$ and $AB \parallel DC$. Then, the values of a and b are respectively.



- (A) $60^\circ, 120^\circ$ (B) $50^\circ, 130^\circ$
 (C) $70^\circ, 110^\circ$ (D) $80^\circ, 100^\circ$
2. Triangles ABC and CDE are isosceles triangles. ACEF is a straight line. Find the value of y .

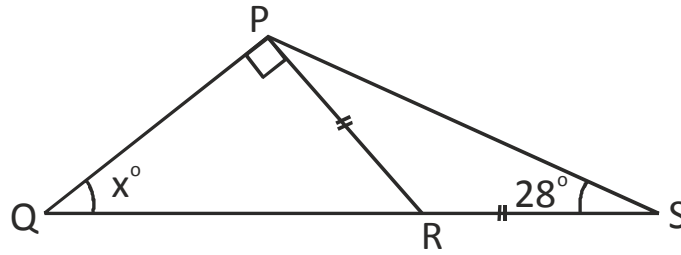


- (A) 52° (B) 58° (C) 68° (D) 76°
3. Find the measure of y in the given figure.



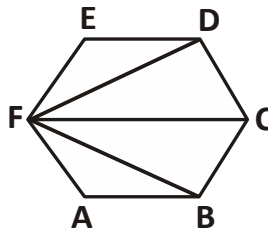
- (A) 30° (B) 60° (C) 90° (D) 120°

4. What is the measure of x ?



- (A) 14 (B) 28 (C) 34 (D) 44

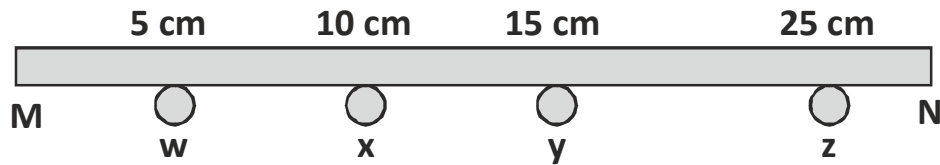
5. A regular hexagon is divided into four triangles.



Which of the following is correct ?

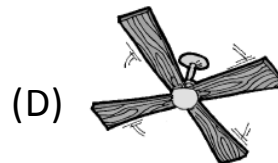
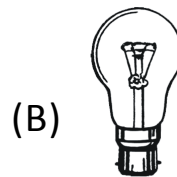
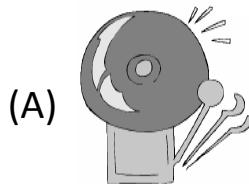
- (A) ABF EDF (B) FDC FCB
(C) ABF FBC (D) FDC BCF

6. Given below is a metal rod. 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.

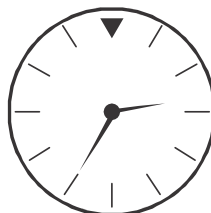


When heated from the end M, drop w fall off first in 2 minutes time. What will be the time taken for the drops x, y and z to fall in minutes ?

- (A) 4, 6, 10 (B) 3, 9, 12
(C) 5, 10, 15 (D) 6, 12, 18
7. Which of the following electrical appliances does NOT use the magnetic effects of current?



8. The given figure shows the image of a clock as seen in a plane mirror. The correct time is



- (A) 2.25. (B) 2.35. (C) 6.45. (D) 9.25.

9. **A hot air balloon rises up because**
- (A) the special fabric of the balloon is lighter than air.
 - (B) hot air is less dense than the cooler air which surrounds it.
 - (C) wind blows into the balloon and lifts it up.
 - (D) the flame produces smoke which lifts the balloon.
10. **Which option is correct for all heat transfers?**

	Conducted	Convection	Radiation
(A)	No medium is required	Through solids only	Through liquids and gases
(B)	Through liquids and gases	No medium is required	Through solids only
(C)	Through solids only	Through liquids and gases	No medium is required
(D)	Through solids only	No medium is required	Through liquids and gases

11. Which of the following is a physical change ?
- (A) The rusting of iron nails
 - (B) The burning of diesel
 - (C) Breaking of a glass bottle
 - (D) The heating of iron with sulphur
12. What causes convection currents in air ?
- (A) The revolution of the earth around the sun
 - (B) The rotation of the earth around itself
 - (C) The heat on the surface of the earth
 - (D) Conversion of solid to gas directly
13. Read the following statements and answer:
- I. Ozone protects us from sun's harmful radiations.
 - II. Ozone absorbs the UV radiations from the sun and breaks down to oxygen
 - III. Oxygen acts as a protective shield.
- (A) Statement I and II are correct, but III is false.
 - (B) Statement I and II are false, but III is correct.
 - (C) Statement I is true, II and III are false.
 - (D) All are correct statements.

14. Which of the following word equations represents neutralisation ?
- (A) Sodium hydroxide + hydrochloric acid \rightarrow sodium chloride + water
- (B) Calcium carbonate \rightarrow calcium oxide + carbon dioxide
- (C) Hydrogen + oxygen \rightarrow water
- (D) Methane + oxygen \rightarrow carbon dioxide + water
15. Sohail's teacher asked to identify the correct order of the processes listed below to purify water and make it safe for drinking.

- (i) Filtration
(ii) Sedimentation
(iii) Chlorination
(iv) Addition of chemicals

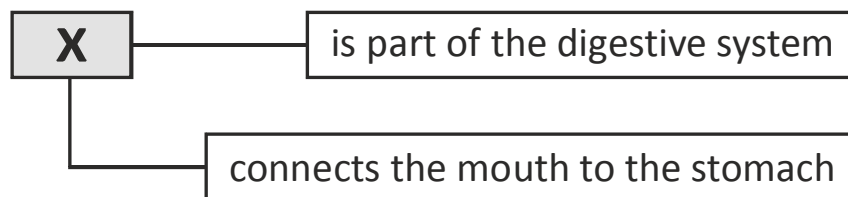
Which of the following is the correct order that Sohail arranged ?

- (A) (i), (iii), (iv), (ii) (B) (iv), (ii), (i), (iii)
- (C) (ii), (iv), (i), (iii) (D) (iii), (i), (iv), (ii)

16. Which of these characteristic features hold true about the figure given below ?



- (A) It has pitfall traps that contain digestive enzymes.
 (B) It is able to suck in the prey with a vacuum-like trap.
 (C) Its leaves are pigmented to lure the insects.
 (D) All of these
17. Study the concept map below. What is 'X' ?



- (A) Oesophagus (B) Windpipe
 (C) Small intestine (D) Large intestine
18. Identify the correct pair.

- (A) – Diffusion (B) – Flame cell
 (C) – Nephridia (D) – Malpighian

19. Show the correct path of digestion.



- (A) E → C → B → A → D
- (B) C → E → B → D → A
- (C) C → B → E → A → D
- (D) B → E → C → D → A

20. The diagram below shows how carbon dioxide is given out or taken in during the processes, P, Q and R.



Which of the following correctly identify the processes, P, Q and R ?

	P	Q	R
(A)	Respiration	Photosynthesis	Respiration
(B)	Respiration	Respiration	Photosynthesis
(C)	Photosynthesis	Respiration	Photosynthesis
(D)	Photosynthesis	Photosynthesis	Respiration

21. Carl, Dylan and Edmund are best friends. Only one of them knows how to drive.

Carl: I can drive.

Dylan: I do not know how to drive.

Edmund: Carl does not know how to drive !

Only one of them is telling the truth. Who can drive ?

- (A) Carl (B) Edmund
(C) Dylan (D) All are lying

22. Arrange the following words in a meaningful order.

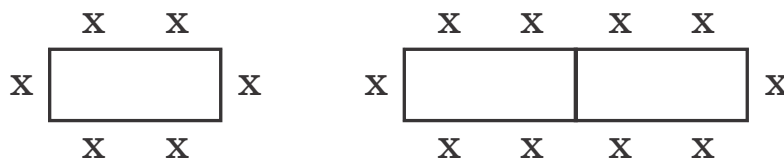
1. Family	2. Community
3. Member	4. Locality
	5. Country

- (A) 3, 1, 2, 4, 5 (B) 3, 1, 2, 5, 4
(C) 3, 1, 4, 2, 5 (D) 3, 1, 4, 5, 2

23. Choose the word that is necessary part of the word 'LANGUAGE'.

(A) Tongue (B) Slang (C) Writing (D) Words

24. A group of people go to a restaurant for a dinner. They requested to be seated at the same table. The restaurant has only rectangular tables that can be joined end to end to form a large, long table. Study the figure given below.



How many people can be seated if there are 20 tables ?

- (A) 60 (B) 94 (C) 82 (D) 76

- 25. A doctor gives you three pills and tells you to swallow one pill every hour. How long would it take for you to complete the course ?**
- (A) 1 hr (B) 2 hrs
(C) 3 hrs (D) 4 hrs



UNIFIED COUNCIL

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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

Solutions for Class : 7

MATHEMATICS

- (B) $A = a = 50^\circ$
 $a + c = 180^\circ$
 $c = 130^\circ$
 $b = c = 130^\circ$
- (D) $DEF = 180^\circ - 124^\circ = 56^\circ$
 $DCE = DEC = 56^\circ$ [$\because DC = DE$]
But $BCA + 72^\circ + 56^\circ = 180^\circ$
 $BCA = 52^\circ$
 $A = BCA = 52^\circ$
In $\triangle ABC$, $52^\circ + 52^\circ + y = 180^\circ$
 $y = 76^\circ$
- (A) PQR is equilateral.
 \therefore Each of its angles is 60° .
In $\triangle PRS$, $PR = RS$
 $x + y + y = 180^\circ$
Also, $x = 180^\circ - 60^\circ = 120^\circ$
 $y = \frac{180^\circ - 120^\circ}{2} = 30^\circ$
- (C) In $\triangle PRS$, given $PR = RS$
 $S = RPS = 28^\circ$
 $QPS = 90^\circ + 28^\circ = 118^\circ$
In $\triangle PQS$ $x + 118^\circ + 28^\circ = 180^\circ$
 $x + 146^\circ = 180^\circ$
 $x = 34^\circ$
- (A) When considering congruent triangles, the order is very important.

Therefore, $\triangle ABF \cong \triangle EDF$.

PHYSICS

- (A) When the end M of a metal rod given in the figure is heated the drop w placed at 5 cm takes 2 minutes to fall off. Hence, for a drop at 10 cm to fall off, it takes $2 \times 2 = 4$ minutes.
Thus, the time taken by drops x, y, z are 4 minutes, 6 minutes and 10 minutes respectively.
- (B) Electrical appliances shown in options (A), (C) and (D) use the magnetic effects of current. An electric bulb converts the electric energy to light energy.
- (D) As per the image of a clock as seen in a plane mirror, the correct time is 9.25.
- (B) A hot air balloon rises up because the hot air in the balloon is less dense than the cooler air surrounding it.
- (C) Conduction occurs only in solids, convection occurs only in liquids and gases, and radiation requires no medium.

CHEMISTRY

- (C) A glass bottle after it breaks undergoes a change only in its size and shape, but not in its composition. So, it is a physical change.
- (C) Air on the surface of the earth gets heated up due to sunlight. It becomes lighter and goes up. It gets cooled and comes down. Thus, convectional currents occur on the earth.

13. (A) Statements I and II are correct.
- (I) Ozone protects us from sun's harmful radiations.
- (II) Ozone absorbs the UV radiations from the sun and breaks down to oxygen.
- (III) Ozone acts as a protective shield not oxygen.

14. (A) Sodium hydroxide and hydrochloric acid react to form sodium chloride and water which is a neutralisation reaction.

Option (B): It is a thermal decomposition of calcium carbonate.

Option (C): It is the burning (combustion) of hydrogen gas.

Option (D): It is the burning (combustion) of methane gas.

15. (C) Water is first allowed to settle so that a sediment of impurities is formed. Then chemicals like alum and lime are added so that sediments further settle down. Then the water is filtered through sand and gravel, there by making it pure. Then it is chlorinated to make it free from germs and bacteria.

BIOLOGY

16. (D) Pitcher plant / venus fly trap / bladder wort.

Pitcher plant found in Khassia hills of Meghalaya is an endangered plant producing pitchers as modified leaf lamina. They attract and kill their prey, but passively through their attractive colours. They also produce sugary nectar and sweet scents. From this relationship the plants primarily gain nitrogen and phosphorous to supplement there nutrient requirement for growth.

17. (A) Oesophagus connect the mouth to the stomach.

18. (D)  – Malpighian tubules.

19. (B) C → E → B → D → A

20. (A) P-Respiration; Q-Photosynthesis; R-Respiration.

CRITICAL THINKING

21. (C)

22. (A)

23. (D)

24. (C)

25. (B)