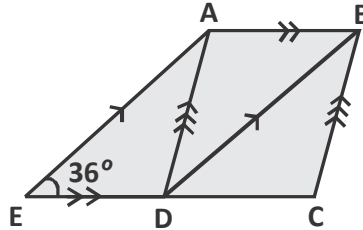
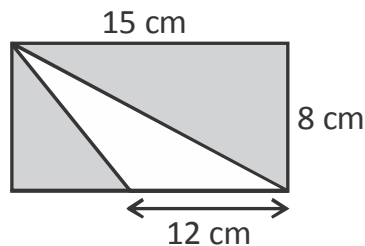


1. In the figure, ABCD is a rhombus and ABDE is a parallelogram.



Given that EDC is a straight line and  $\angle AED = 36^\circ$ , find  $\angle BAD$ .

- (A)  $36^\circ$       (B)  $72^\circ$       (C)  $108^\circ$       (D)  $120^\circ$
2. What is the area of the shaded region ?



- (A)  $48 \text{ cm}^2$     (B)  $72 \text{ cm}^2$     (C)  $120 \text{ cm}^2$     (D)  $24 \text{ cm}^2$
3. If  $x$  and  $y$  are directly proportional, find the respective values of  $x_1$ ,  $x_2$  and  $y_1$  in the table given.

$x$	3	$x_1$	$x_2$	10
$y$	30	50	80	$y_1$

- (A)  $x_1 = 8$ ;  $x_2 = 2$ ;  $y_1 = 100$     (B)  $x_1 = 5$ ;  $x_2 = 8$ ;  $y_1 = 100$   
 (C)  $x_1 = 2$ ;  $x_2 = 8$ ;  $y_1 = 100$     (D)  $x_1 = 5$ ,  $x_2 = 8$ ,  $y_1 = 120$

4. Which of the following statements is true ?

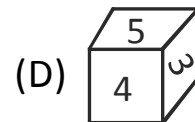
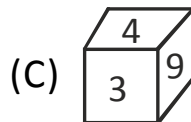
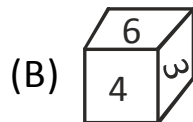
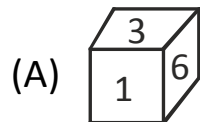
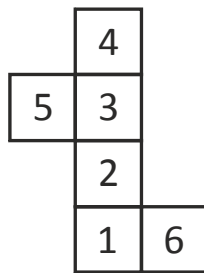
(A)  $\frac{18}{35} \quad \frac{9}{7} \quad \frac{9}{7} \quad \frac{18}{35}$

(B)  $\frac{2}{3} \quad \frac{3}{5} \quad \frac{1}{2} \quad \frac{2}{3} \quad \frac{3}{5} \quad \frac{1}{2}$

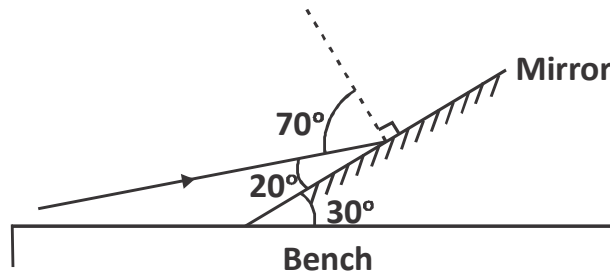
(C)  $\frac{2}{3} \quad \frac{1}{5} \quad \frac{7}{15} \quad \frac{2}{3} \quad \frac{7}{15} \quad \frac{1}{5} \quad \frac{7}{15}$

(D)  $\frac{3}{4} \quad \frac{27}{15} \quad \frac{12}{5} \quad \frac{3}{4} \quad \frac{27}{15} \quad \frac{12}{5}$

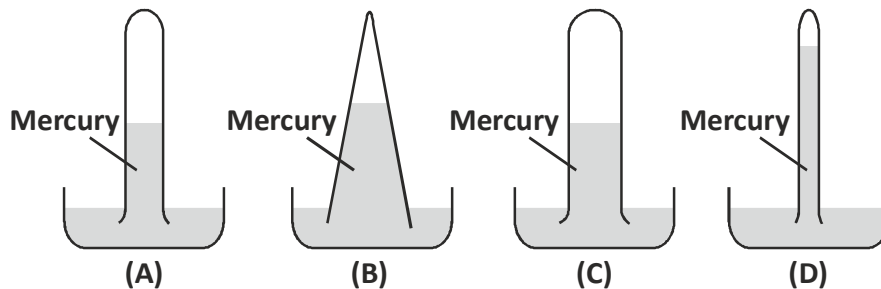
5. Which one of the following solids can be obtained by folding the given net ?



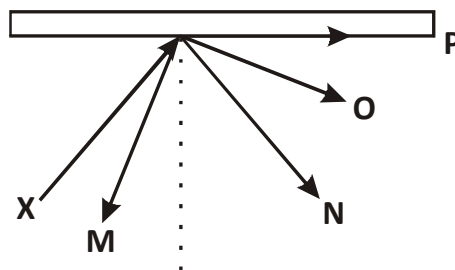
6. A plane mirror is inclined at  $30^\circ$  to the bench. A ray of light is directed so that it hits the mirror at an angle of  $20^\circ$  to the surface of the mirror. What is the angle of reflection ?



- (A)  $20^\circ$       (B)  $40^\circ$       (C)  $65^\circ$       (D)  $70^\circ$
7. Which of the mercury barometers shown below indicate the highest air pressure ?



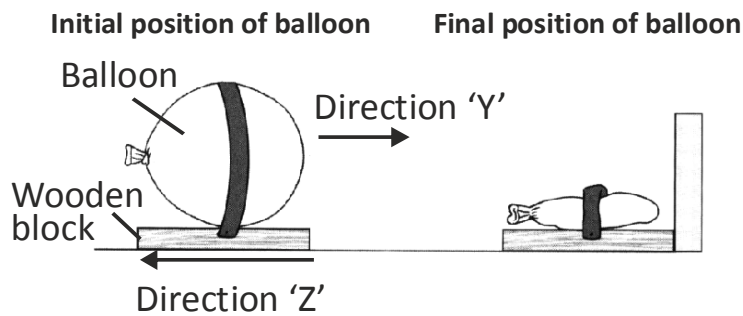
8. The given diagram shows the path of a light ray X, directed at a plane mirror.



Which of the following is the correct reflected ray ?

- (A) M      (B) N      (C) O      (D) P

9. **Observe the figures given below.**



**Which statement is true ?**

- (A) A push force is acting in direction Y.
  - (B) Frictional force is acting in direction Z.
  - (C) A magnetic force pulls the balloon in direction Y.
  - (D) Both (A) and (B)
10. **Four forces P, Q, R and S of different magnitudes were used to push the same object over the same type of surface over a distance. Based on the table given below, which force is of the higher magnitude ?**

	Force	Distance moved	Time taken
A.	P	130 cm	7 seconds
B.	Q	130 cm	13 seconds
C.	R	90 cm	7 seconds
D.	S	90 cm	13 seconds

11. Identify an incorrect statement.
- (A) CNG and LPG are clean fuels.
  - (B) Petroleum is refined in a petroleum refinery.
  - (C) Petroleum products are called petrochemicals.
  - (D) Coal does not cause any pollution when burnt.
12. Metal P reacts with water and dilute hydrochloric acid. Metal Q does not react with water but reacts with dilute hydrochloric acid. Metal R does not react with water and dilute hydrochloric acid. Which one shows their reactivity in a decreasing order ?
- (A) P, Q, R
  - (B) P, R, Q
  - (C) R, Q, P
  - (D) Q, R, P
13. Which of given statements is true ?
- (A) Carbon dioxide is used to extinguish fires involving oil and petrol.
  - (B) Water is not suitable for fires involving electrical equipments.
  - (C) Water is the best extinguisher for fires involving inflammable materials.
  - (D) Both (A) and (B).

14. A copper coin is kept immersed in a solution of silver nitrate for some time. What will happen to the coin and the colour of the solution ?

- (A) Silver metal will be deposited on the coin and solution will turn blue
- (B) Solution will remain colourless and coin will turn blue
- (C) Both solution and the coin will turn blue
- (D) Both solution and the coin will become colourless

15. Match the entries in Column I with those in Column II.

	Column - I		Column - II
(A)	Silk	(1)	Rope
(B)	Nylon	(2)	Sweater
(C)	Acrylic	(3)	Bottle
(D)	Plastic	(4)	Saree

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

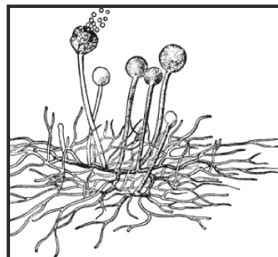
16. Identify the suitable term based on the given information.

The cultivation and breeding of animals, plants and fungi for food, fiber, biofuel and other products used to sustain and enhance human life.

- (A) Biosphere                      (B) Agriculture  
(C) Sanctuary                      (D) National park
17. The characteristics given below belong to :

Five-part body plan  
Radial symmetry  
Spiny outer covering

- (A) Mollusca                      (B) Echinodermata  
(C) Annelids                      (D) Arthropoda
18. The organisms given below reproduces by

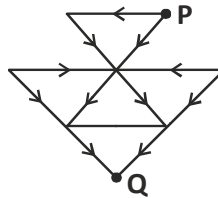


- (A) fission.                      (B) fusion.  
(C) spores.                      (D) conjugation.





21. A situation/statement is given below followed by four options. Choose the best reason.  
**If your father differs with you**  
 (A) you should hold back your ideas and obey him.  
 (B) you should leave the place.  
 (C) you should put forward your point of view and discuss with him the pros and cons of the case.  
 (D) you should ask your mother to favour you.
22. Following the arrows given in the diagram, how many different routes are there from P to Q ?



- (A) 4            (B) 6            (C) 8            (D) 9
23. Arrange the following words in a logical sequence.

1. Gold    2. Iron    3. Sand    4. Platinum    5. Diamond

- (A) 2, 4, 3, 5, 1                      (B) 3, 2, 1, 5, 4  
 (C) 4, 5, 1, 3, 2                      (D) 5, 4, 3, 2, 1
24. 1 cut of a circle divides it into 2 parts. 2 cuts of a circle divides it into at most 4 parts. Then 4 cuts of a circle divides it into at most how many parts ?  
 (A) 11            (B) 9            (C) 10            (D) 12
25. A 66 - seater bus picks up a passenger at the 1<sup>st</sup> bus stop, 2 passengers at the 2<sup>nd</sup> one, 3 passengers at the 3<sup>rd</sup> bus stop and so on. At what stop will all the seats be filled ?  
 (A) 9<sup>th</sup>            (B) 10<sup>th</sup>            (C) 8<sup>th</sup>            (D) 11<sup>th</sup>



**UNIFIED COUNCIL**

An ISO 9001:2008 Certified Organisation



Test • Assess • Achieve

**NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION**

**Solutions for Class : 8**

**MATHEMATICS**

1. (C)  $\angle BDC = \angle AED = 36^\circ$   
 (Corresponding  $\angle$ s,  $AE \parallel BD$ .)  
 $\angle ABD = \angle BDC = 36^\circ$   
 (Alternate  $\angle$ s,  $AB \parallel DC$ )  
 $\angle ADB = \angle ABD = 36^\circ$   
 (Base angles of isosceles  $\Delta$ , since  $AB = DC$ )  
 $\angle BAD = 180^\circ - \angle ABD - \angle ADB$   
 (Angle sum of a triangle.)  
 $= 180^\circ - 36^\circ - 36^\circ$   
 $= 108^\circ$
2. (B) Area of shaded region =  $15 \times 8\text{cm}^2 - \frac{1}{2} \times 12 \times 8\text{cm}^2$   
 $= 120\text{ cm}^2 - 48\text{ cm}^2$   
 $= 72\text{ cm}^2$
3. (B) Since x and y are directly proportional, we have  
 $\frac{3}{30} = \frac{x_1}{50} \Rightarrow \frac{1}{10} = \frac{x_1}{50}$   
 $\Rightarrow x_1 = \left(\frac{1}{10} \times 50\right) = 5$   
 $\frac{3}{30} = \frac{x_2}{80} \Rightarrow \frac{1}{10} = \frac{x_2}{80}$   
 $\Rightarrow x_2 = \left(\frac{1}{10} \times 80\right) = 8$   
 $\frac{3}{30} = \frac{10}{y_1} \Rightarrow \frac{1}{10} = \frac{10}{y_1}$   
 $\Rightarrow (y_1 \times 1) = (10 \times 10) \Rightarrow y_1 = 100$   
 $\therefore x_1 = 5, x_2 = 8 \text{ and } y_1 = 100$

4. (C)  $\frac{a-b}{c} = \frac{a}{c} - \frac{b}{c}$

5. (C) By folding the given net, the cube in option (C) can be formed.

**PHYSICS**

6. (D) As per the laws of reflection of light  $\angle i = \angle r$ . The angle of reflection is  $70^\circ$ , as the angle of incidence is  $70^\circ$ .
7. (D) In mercury barometers, the atmosphere (or the air) pushes down on the mercury in the trough. This in turn pushes the mercury in the tube up. The height of mercury in the tube is used as a measure of atmospheric pressure. So, higher the level of mercury in the tube irrespective of the shape of the tube, higher is the atmospheric air pressure. The highest level of the mercury inside the barometer indicates the highest air pressure.
8. (B) We know that for a reflected ray, the angle that the incident ray makes with the line perpendicular to the surface is equal to the angle made by the reflected ray with this perpendicular line. N is the correct reflected ray of X.
9. (D) The air rushed out of the balloon and pushed the set-up forward in direction Y. Frictional force acts in the opposite direction of motion, i.e., Z.
10. (A) First, compare P and Q. The distance moved is the same (130 cm), so the one with the higher magnitude will move faster. It is P. Next, compare R

and S. The distance moved is 90 cm. The one that moved that distance in the shorter amount of time has the larger magnitude. It is R. Finally, compare P and R. They both took 7 seconds to complete. Therefore, if we look at the distance moved, the one that completed the longer distance in 7 seconds has the higher magnitude

### CHEMISTRY

11. (D) Coal when burnt releases sulphur dioxide and smoke that pollutes the air.
12. (A) Metal P reacts both with water and dilute hydrochloric acid. Metal Q does not react with water but reacts with dilute hydrochloric acid. Metal R does not react with water and dilute hydrochloric acid. P, Q, R is the correct reactivity in a decreasing order of given metals.
13. (D) For fires involving inflammable materials like petrol and electrical equipment carbon dioxide (CO<sub>2</sub>) is the best extinguisher. CO<sub>2</sub>, being heavier than oxygen, covers the fire like a blanket. As the contact between the fuel and oxygen is cut off, the fire is controlled. The added advantage of CO<sub>2</sub> is that in most of the cases it does not harm the electrical equipment.
14. (A) Copper being more reactive than silver, displaces silver and the solution turns blue due to the formation of copper nitrate.
15. (D) The correct matching is :  
a – 4, b – 1, c – 2, d – 3  
(i) Silk - Saree  
(ii) Nylon - Rope  
(iii) Acrylic - Sweater  
(iv) Plastic - Bottle

### BIOLOGY

16. (B) Agriculture is the cultivation and breeding of animals, plants and fungi for food, fiber, biofuel and other products used to sustain and enhance human life.
17. (B) Echinodermites include starfish, sea urchins and brittle stars. They mostly have fivefold symmetry with spiny outer covering.
18. (C) Mucor reproduces by spores.
19. (B) 'P' is binary fission and 'Q' is budding. Binary fission and budding are asexual reproduction.
20. (C) Organelle chloroplast converts light energy to chemical energy during the process of photosynthesis. It has chlorophyll to trap sunlight during photosynthesis.

### CRITICAL THINKING

21. (C)  
22. (B)  
23. (B)  
24. (A)  
25. (D)