SILVERZONE FOUNDATION
New Delhi, India

20th GLORIOUS YEAR

STEM
OLYMPIAD

Science | Technology | Engineering | Mathematics

SILVERZONE FOUNDATION
New Delhi, India

STEM
OLYMPIAD
Geniuses are
~~born, not~~
made.

About

SilverZone STEM Innovation Olympiads (STEM) is a noble pursuit encouraging our bright youth to take part in a cause that is much bigger than themselves. A forward-thinking movement to achieve excellence in the field of Science, Technology, Engineering and Mathematics.

Structure of the Olympiad

The Olympiad is open for Classes from 3rd to Class 10th and will be conducted in two stages.

Stage 1: National Stage

In this stage the student will compete with their counterpart from their home country. They will qualify for Stage 2 only after scoring a cutoff marking of 75%.

Stage 2: Inernational Stage

In this stage the student will compete with all the students from other countries along with their home country. The top 100 winners scoring more than 75% in Stage 1 from every class of each country will be taking part in stage 2.

Test Paper

The language medium is English only. The examination is being conducted for all classes from 3rd to 10th with the following details.
For Classes 1-2: There will be 25 questions and the duration will be 40 Minutes.
For Classes 3-5: There will be 35 questions and the duration will be 40 Minutes.
For Classes 6-10: There will be 40 questions and the duration will be 50 Minutes.

The questions will be of objective type in nature with multiple choice answers. There is no negative marking.

Syllabus & Sample Questions

Science: Everyday science; Story of movement; Light rays and their interesting behaviour; Magic of magnet; Current and its path; Movement in living world

Technology & Engineering: AI – Introduction to AI, The Birth of AI, Understanding AI, Future of AI, New Technologies (Augmented Reality); Coding – Introduction of Coding, Algorithms with Block Coding, Variables using Block Coding, Control with Conditionals, Loops using Block Coding; Intelligence assessment with Logical Reasoning – Series Completion, Blood Relation, Direction Sense Test, Geometrical Shapes, Mirror and Water Reflections

Mathematics: Numbers and its Operations; Comparing Quantities; Algebra; Geometry; Mensuration; Data Handling

Science

1. Look at the activity carefully. Which statement is incorrect with respect to the activity?


Kettle containing salt water

Beaker
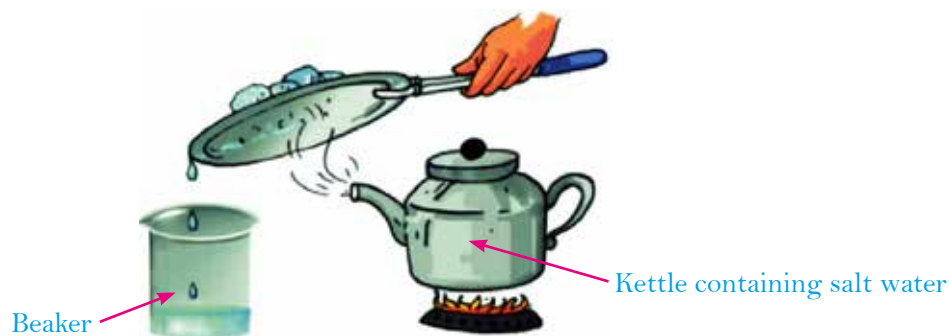
A. In this activity salt is getting separated from water.

B. This activity involves the process of condensation and evaporation.

C. This activity shows that soluble substances cannot be separated from water by the process of evaporation and condensation.

D. None of these

2 Raj prepares two electric circuits as shown below then allow current to pass through them. He notices bulb of only one of the circuits is glowing. Bulb of which circuit is glowing and what is most likely reason for the other circuit's bulb to not to glow?
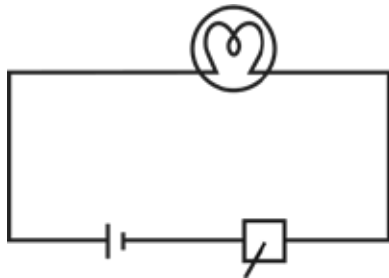

Cardboard box   Gold clip
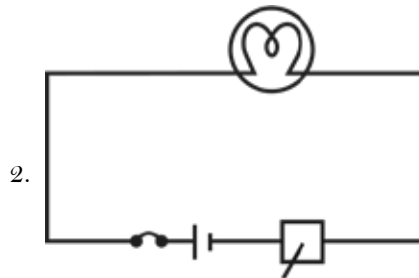
A.   Bulb of circuit 1 is glowing but in circuit 2 he fitted switch in wrong way. So, bulb of circuit 2 is not glowing

B.   Bulb of circuit 2 is glowing but circuit 1 contains a piece of cardboard box which is insulator. So, bulb of circuit 1 is not glowing.

C.   Bulb of circuit 2 is glowing. He did not connect circuit 1 with switch. So, its bulb is not glowing.

D.   Bulb of circuit 2 is glowing and the clear reason for bulb of circuit 1 to not to glow is that it is fused.

3 Two plane mirrors M and N have been placed parallelly and a ray of light is allowed to reflect by them as shown below. Sum of angles X, Y and Z in the following figure is:
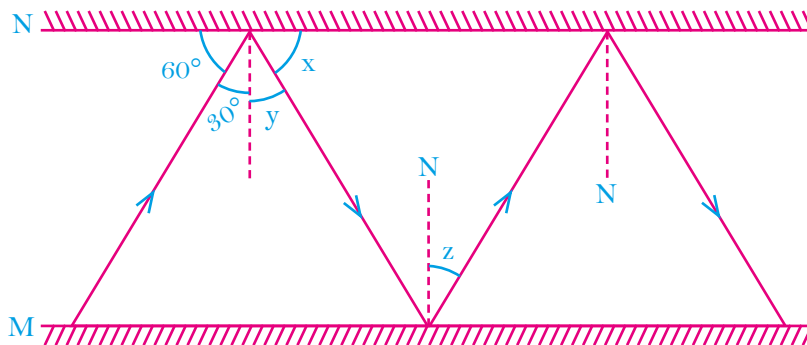
A.   60°   B.   90°

C.   120°   D.   160°

4 Which combination of statements is correct?

i.   *We can find speed of a moving object, if total traveled distance by it and total time taken is provided.*

ii. *If an object is moving with speed of 90 km/h, it means it is covering the distance of 90 metres in every second.*

iii. *Speed of a moving object cannot exceeds 1000 km/h.*

iv. *Speed of two objects cannot be same at any point of time.*

A.   i , ii and iv only   B.   ii, iii and iv only

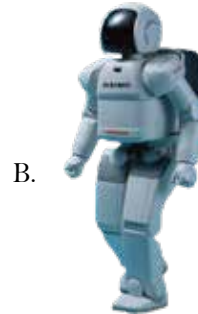C.   i and iv only   D.   i only

Technology & Engineering

5 Which one of the following humanoid robots is displayed in the Miraikan museum in Tokyo.
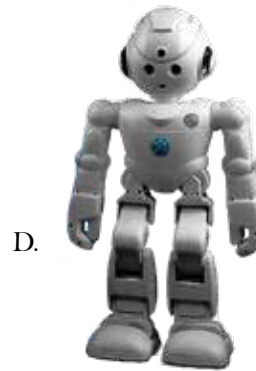
A.

Big Dog

B.

Asimo

C.

ROOMBA

D.

Alexa

6 A home equipped with lighting, heating and electronic devices that can be controlled remotely by smartphone or computer is called a _____.

A. Smart Home   B. Intelligent Home

C. Sustainable Home   D. Sensor Home

7 Which letter won't print while running the below pseudocode?

```
for letter in "coding":
    if letter == "i":
        break
    print(letter)
print("End")
```

A. 'd'   B. 'c'

C. 'n'   D. 'o'

8   In the figure given below, A is B's daughter. B is C's mother. D is C's brother. How is D related to A?

A.   Son   B.   Uncle

C.   Brother   D.   Father

Mathematics

9   A mobile number having 10 digits. Only first four digits of this number are repeated and are 9999. If digit at unit's place is equal to the sum of the digits at thousand and ten thousand's places. The digit at ten's place is twice the digit at thousands place. The digit at thousand's place is the smallest composite number. The digit at lac's place is the smallest prime number. No digit of the number has 5. Find the mobile number.

A.   9999634287   B.   9999234687

C.   9999634782   D.   9999234786

10   Harry and Jennifer went to Laddakh. On Monday they recorded minimum temperature −4°C and on Wednesday they recorded minimum temperature −1°C. Based on this information choose the statement which is true?

A.   Monday was hotter than Wednesday.

B.   Temperature difference of Monday and Wednesday was −3°C.

C.   Wednesday was cooler than Monday.

D.   None of these

11 Ramesh has a field with perimeter 528 ft. He makes 56 identical squares from this field as shown below:
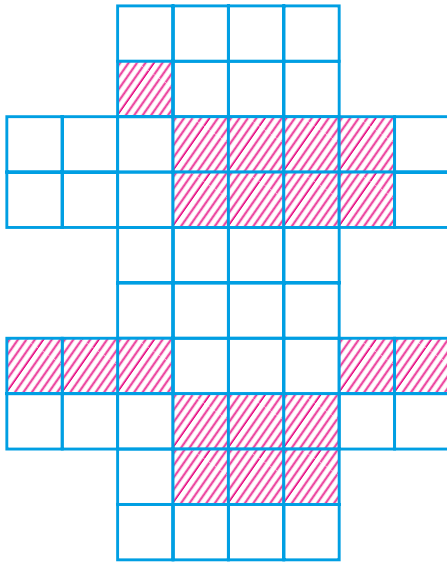
If he planted saplings in 20 such squares (shown as shaded part) and then he leaves rest portion of the field vacant. Find the area of unshaded portion.

A. 432 sq ft   B. 5184 sq ft

C. 4320 sq ft   D. 528 sq ft

12 The price of wheat is increased by 25%. If the expenditure on wheat remains same as earlier then ratio of the reduction in the consumption and the initial consumption respectively will be _____

A. 2 : 3   B. 1 : 4

C. 3 : 4   D. 1 : 5

ANSWERS

1. (C)	2. (B)	3. (C)	4. (D)	5. (B)	6. (A)
7. (C)	8. (C)	9. (B)	10. (D)	11. (B)	12. (D)

SILVERZONE FOUNDATION
New Delhi, India

STEM
OLYMPIAD

Science | Technology | Engineering | Mathematics