



SILVERZONE FOUNDATION  
New Delhi, India

# STEM OLYMPIAD



Science | Technology | Engineering | Mathematics



# 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: International 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:** Forces and their applications; Energy and its different forms; Our magical solar system; The three physical states of matter; Kingdom of plants and animals; Systems inside our body

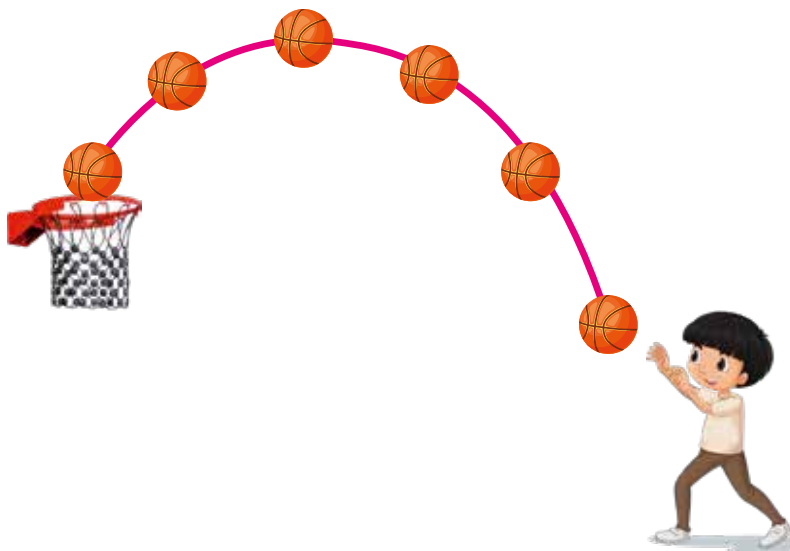
**Technology & Engineering:** Information Technology - More on Hardware and Software, Application of Internet and Security; Coding using 'Scratch' - Block based Programming Language (Intermediate), Introduction to Artificial Intelligence [AI Smart Homes], Intelligence assessment with Logical Reasoning

**Mathematics:** Working with Numbers; Dividing A Whole; Everyday Mathematics; Understanding Geometrical Shapes; Representing Data

## Science

1

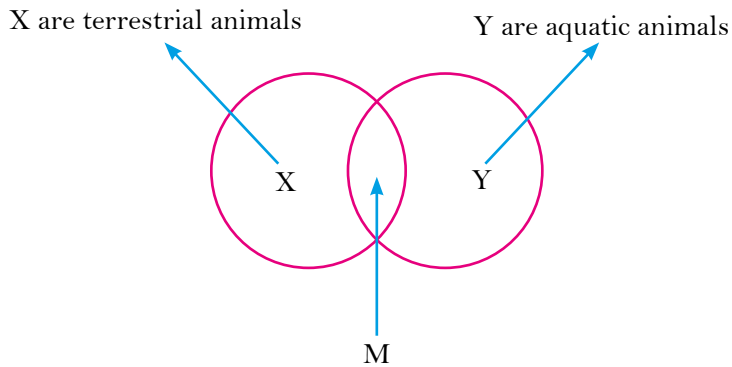
While playing basketball game, Raj throws the ball into the basket. The following picture shows the path traversed by the ball from Raj's hand to the basket. Which three forces are primarily involved in placing the ball from Raj's hand to the basket?



- A. Electrical force, magnetic force, muscular force
- B. Gravitational force, magnetic force, muscular force
- C. Gravitational force, frictional force, muscular force
- D. Gravitational force, magnetic force, electrical force

2

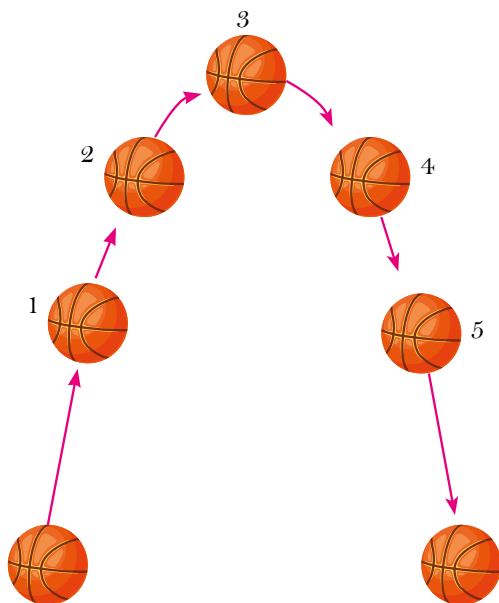
Identify M in the given diagram.



- A. M are carnivores
- B. M are mammals
- C. M are insectivores
- D. M are amphibians

3

A boy throws a ball up, the ball reaches the certain height then returns to the ground as shown in the figure. At which position the ball has the maximum potential energy?



- A. Position 1
- B. Position 2
- C. Position 3
- D. Position 4

4

Four different space probes have been sent to four different planets; probe 1 to planet Mercury, probe 2 to planet Mars, probe 3 to planet Venus and probe 4 to planet Neptune. After reaching their destination, which probe will be at maximum distance from the Sun?

- A. Probe 1  
B. probe 2  
C. Probe 3  
D. probe 4

## Technology & Engineering

5





Match the following column I with column II.

| Column I |   | Column II |              |
|----------|---|-----------|--------------|
| 1.       |    | a.        | Network Port |
| 2.       |  | b.        | USB Port     |
| 3.       |  | c.        | VGA Port     |
| 4.       |  | d.        | Speaker Port |
| 5.       |  | e.        | HDMI Port    |
| 6.       |  | f.        | Power Port   |

- A. 1→e, 2→d, 3→a, 4→b, 5→f, 6→c  
B. 1→a, 2→c, 3→b, 4→d, 5→e, 6→f  
C. 1→b, 2→a, 3→c, 4→d, 5→e, 6→f  
D. 1→a, 2→b, 3→c, 4→d, 5→f, 6→e

6

Match the following smart product with their respective functions:

|    |   |   |
|----|---|---|
| 1. |  | a. Used for a variety of tasks, i.e., play music, book cab, check bank balance. |
| 2. |  | b. Used to lock and unlock the doors through app or voice command               |
| 3. |  | c. Controls the lighting remotely.  |
| 4. |  | d. Smart home surveillance system.  |

A. 1→a, 2→b, 3→c, 4→d









B. 1→d, 2→c, 3→a, 4→b

C. 1→d, 2→c, 3→b, 4→a

D. 1→a, 2→b, 3→d, 4→c

7

Find the correct missing image in the given figure.

|   |   |   |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  | ?   |

A. B. C. 

D. None of these

8

Which of the following is helpful in writing short stories, letters and short notes and also used to insert dates, pictures, hyperlinks?



Notepad



Wordpad



Paint

D. All of these

## Mathematics

9

In a prayer hall, students are arranged in 25 rows and in each row total 12 students are there. If students were arranged in 5 less number of rows then in each row total number of students would be increased by \_\_\_\_\_

A. 2

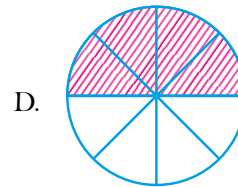
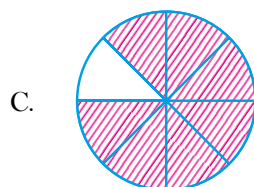
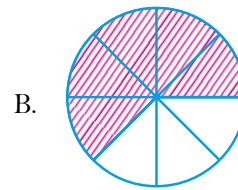
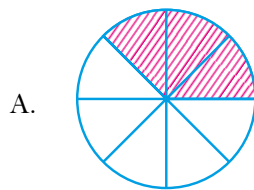
B. 3

C. 4

D. 5

10

The part of a cake is eaten and showed as shaded part in the figure given below. Choose the cake in which eaten part is greater than  $\frac{6}{8}$ ?



11

On a day, a Health-fitness app shows the number of steps taken by Prabhav and Prisha as 2100 steps and 2800 steps respectively. If such 1400 steps is equal to 1KM, then distance covered by Prisha is more than Prabhav by \_\_\_\_\_.






- A. 300 metres  
C. 400 metres

- B. 500 metres  
D. 600 metres

12

The cost of some articles of a shop is shown below:

| Articles  | Total Cost |
|---|------------|
|  | ₹870       |
|  | ₹140       |
|  | ₹2200      |

Shubha purchases 3 , 6  and 1 . If she gives ₹4000 to the shopkeeper, then how much amount she will get in return?

- A. ₹260  
C. ₹285

- B. ₹270  
D. ₹290

### ANSWERS

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





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