SPARK REGIONALS

Question Paper

------- Class 7 & 8 -------

Shaastra- The annual technical festival of IIT Madras, is a completely student organized festival and acts as a didactic standpoint for the footfall of **50,000** visitors attending the event.

The Shaastra team believes that the future of this world depends on the shoulders of young school children. This program aims to inspire young, brilliant minds by illustrating what lies ahead for them in the world of science and technology.

Shaastra, **IIT Madras** proudly presents **SPARK**, our flagship event for school students, conducted with participants from over **20+** cities across the nation!

Structure of Spark

Shaastra Spark Round 1:
- It is a quiz to test the student's Aptitude, Logical and Mathematical Reasoning skills and happens in over 20+ cities all over the country.
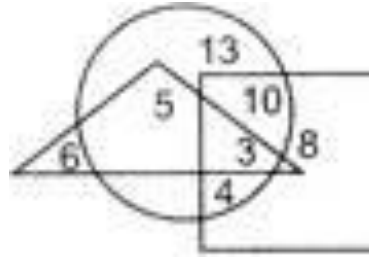
Shaastra Spark Round 2 (Online Case Study Competition):
- A problem statement will be provided to participants. Teams must come up with an innovative solution for the same.
- Further details will be conveyed later.
- The top shortlisted teams will be invited to participate in the Spark Junior Championship (SJC) at Shaastra, IIT Madras.

Shaastra Spark Junior Championship (SJC):
- Selected teams from Round 2 will be invited to IIT Madras on a sponsored two-day trip.
- Finalists will participate in competitions and will get a chance to interact with IIT Madras Professors and students to ensure a holistic learning experience.
- Further details regarding the competition will be provided later to the selected teams.

Instructions for Candidates:

- Do not open this question paper until directed by the invigilator.
- Use of calculators, mobile phones, or any electronic devices is strictly prohibited.
- Answer all questions by marking appropriate option (A, B, C, or D) on provided answer sheet using a blue/black ballpoint pen.
- Ensure that you clearly write your registration number, name, and class in the designated spaces on the answer sheet.
- This paper consists of four sections, each containing five questions.
- For each correct answer, you will receive 1 mark. No marks will be deducted for incorrect or unanswered questions.
- Candidates are not permitted to leave the examination hall during the duration of the exam.

I. Mathematical Reasoning (MCQs)

1. A room of the hall is such that the ratio of the height of the room to its semi-perimeter is 6:10 and the cost of wall paper to cover the walls of the room is Rs. 1700, when the width of the paper is 100 cm at the rate of Rs.10 per m^2, except the door and window whose area is 40 m^2.
   The height of the room is:
   A) 2√6 m   B) 4√6 m
   C) 6√1.75 m   D) 5√6 m

2. Harsh starts walking straight facing south. After 15 metres he turned to his right, walked 10 metres and turned to his left. Again after walking a distance of 5 metres he turned to his left. Which direction is he facing now?
   A) West   B) North-East
   C) East   D) South-West

3. A The sales of lipsticks in 2000 was by what percent more than the sales of nail enamels in 2000? (rounded off to nearest integer).
   Directions For Question 3 : A cosmetic company provides five different products. The sales of these five products (in lakh number of packs) during 1995 and 2000 are shown in the following bar graph.

   A) 33%   B) 28%
   C) 31%   D) 22%
   E) None of these

4. Find the missing number, if same rule is followed row-wise or column-wise.

2	4	0
1	2	4
3	1	3
36	?	91

   A) 29   B) 48
   C) 59   D) 73

5. In the given diagram, square represents women, triangle represents sub-inspectors of police and circle represents graduates. Which numbered area represents graduate women who are sub-inspectors of police?


A) 5

B) 8

C) 3

D) 13

II.   Logical Reasoning (MCQs)

1. Priya remembers that she saw her maternal aunt on Friday after the 23rd of a month.
   If 6th of that month fall on Sunday, then on what day of the week did she meet?
   A)24th

   B) 25th

   C)27th

   D) 29th

2. Direction: In each of the following questions, there is a series of five figures. In order to continue the series, choose a figure from the options that could be the next term of the series.

Problem Figures
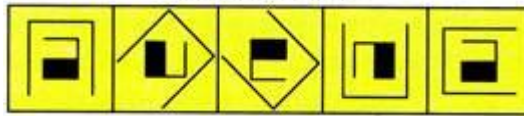
A)

B)

C)

D)

3. Direction: In each of the following questions, identify the pattern and find out the missing character.

P	S	?
O	R	U
M	P	S

A) I

B) O

C) L

D) V

4. Ashok is younger than Prabir and Gopal. Sohan is younger than Prabir but older than Gopal. Which of the following statements is definitely true?
   A) Ashok is older than Sohan

   B) Sohan is the oldest among them

   C) Gopal is younger than Ashok

   D) Prabir is older than Gopal

   E) None of these

5. Direction: In the following question, from amongst the figures marked (A),(B),(C) and (D), select the one which satisfies the same condition of placement of the dots as in Fig. (X).

Fig. (X)

A)

B)

C)

D)
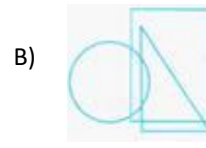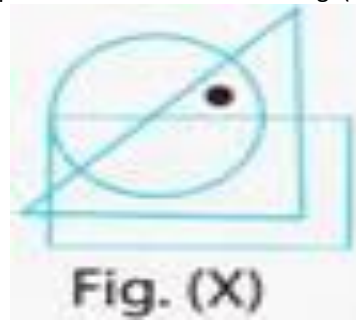
III. **Cognitive Skills** (MCQs)

Read the paragraph below and answer the question that follows:

Jena was excited for the weekend getawey. She had plannned a trip to the beahc with her friends. They were going to have a picnic and swim in the seaa. Jena forgot to bring her suncreen, so she had to borrow some from her friend. Despite the misteaks, they had a wonderful time and enjoyed the sun and sand.

They also visited a local cafee for lunch, where they tried some delicous pastries. Afterward, they took a walk through the park and saw some beautifull flowers. On the way home, Jena realized she had left her bag at the cafe, but luckily, they were able to retrive it.

1. How many mistakes are there in the above paragraph? (NOTE: there are no grammatical errors, only spelling errors)
   A) 9   B) 10
   C) 11   D) 12

2. A 3-digit number lock with the password xyz has to be guessed by detective Nivedha. She has the following clues:
   147- One number right in the wrong place.
   189- One digit is right in the right place.
   964- Two digits right in the wrong place.
   523- All digits are wrong.
   286- One digit is right but in the wrong place.
   Find (x+y)z?
   A) 135   B) 117
   C) 99   D) 108

3. Three friends Aksshith, Vasudha and Shreya have 3 different kinds of pets-a dog, a parrot and a fish.
   1. Aksshith takes his pet for a walk.
   2. Vasudha likes listening to her pet speak.

What pet does Shreya have?

    A) Fish   B) Dog

    C) Parrot   D) Can't find from the given information

4. Which Harsh, Harshith and Aditya were caught eating the last piece of cake from the fridge. One of them stole it alone and shared it with others. The one who stole lied while the other two told the truth.
Harsh: Aditya did it
Harshith: Harsh is lying
Aditya: Harshith is telling the truth.

Who stole the cake?

    A) Harsh   B) Harshith

    C) Aditya   D) Can't find from the given information

5. Which Work out which option is the top-down 2D view of the following 3D figure:

The 3D figure consists of four cubes:
The bottom layer has three cubes arranged in an "L" shape.
The top layer has one cube placed on top of the intersection where the two arms of the "L" meet.

    A) Three squares arranged in a straight horizontal line.
    B) Four squares arranged in an "L" shape.
    C) Three squares forming an "L" shape with one square overlapping at the intersection.
    D) Four squares forming a "T" shape.

IV. Theme Based Questions (MCQs)

1. Which of the following statements is true about global warming?

    A) Global warming has led to large-scale deforestation
    B) Global warming has led to a rise in the sea levels
    C) Global warming has led to a rapid increase in the population across several countries
    D) Global warming has led to a huge amount of waste generation

2. Which of the following statements about climate change is true?

    A) Plantation can be a preventive measure to tackle climate change
    B) The usage of cycles instead of bikes or cars for transportation can be a preventive measure to tackle climate change
    C) The usage of organic products can be a preventive measure to tackle climate change
    D) All of the above

3. Which of the following statements is correct?

    A) Tides are a conventional source of energy
    B) The Sun is a conventional source of energy
    C) Wind is a conventional source of energy
    D) Dried dung is a conventional source of energy

4. What are all the main sustainability objectives?

I. Poverty and hunger eradication
II. Higher education and healthcare standards, notably in terms of water quality and sanitation.
III. Gender inequality
IV. Long-term economic growth that promotes employment and strengthens communities
Code:

A) I, II & III   B) I, III & IV
C) I & III   D) I, II, III & IV

5. With respect to "Sustainable development' which amongst the following statements is false?

A) It makes the world a better place to thrive.
B) It emphasizes the judicious use of natural resources.
C) It advocates the expansion of agriculture.
D) More than one of the above
E) None of the above