

**Time: 3 hours      Maximum Marks: 300**

**READ THE INSTRUCTIONS CAREFULLY**

**GENERAL**

- This sealed booklet is your Question Paper. Do not break the seal till you are told to do so.
- Immediately after breaking the seal of the booklet, verify that the booklet contains **28 pages** and that all the **16 questions** along with the options are legible. Report immediately about any missing or torn sheet in this booklet and ask for a replacement of the booklet from the invigilator. No replacement will be allowed after 15 minutes of the starting of the examination.
- Write your Name, Roll Number, JEE (Advanced) 2024 Rank and other details in the space provided and nowhere else. No distinctive / identification mark of any type is to be put anywhere else in this booklet.
- Answers are to be written only in the booklet and within the space provided beside / box provided beside/below each Question and nowhere else. Answers written in non-designated place will not be evaluated.
- Blank spaces are provided within this booklet for rough work.
- Do not deface this booklet or detach or mutilate any sheet from the booklet. Such acts lead to disqualification.
- The question paper has five sections.
- **All the questions are compulsory.**

**Total Marks Obtained:**

**In Numbers:**

**In words:** \_\_\_\_\_

\_\_\_\_\_  
**Signature of the Examiner with date**

\_\_\_\_\_  
**Signature of the Scrutinizer with date**

**NAME:** \_\_\_\_\_

**ROLL NO:** \_\_\_\_\_

**JEE (ADVANCED) 2024 RANK:** \_\_\_\_\_

**CATEGORY:** \_\_\_\_\_

**CATEGORY RANK (IF APPLICABLE):**

\_\_\_\_\_

**EXAMINATION CENTRE:**

\_\_\_\_\_

**I HAVE READ ALL THE INSTRUCTIONS AND SHALL ABIDE BY THEM**

\_\_\_\_\_  
**Signature of the Candidate**

\_\_\_\_\_  
**Signature of the Invigilator after verification of identity and other details**

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**SECTION A: Architectural Awareness (Maximum Marks: 60)**

This section contains **FOUR** questions. Question 1 carries **30 marks**, Questions 2, 3 and 4 carry **10 marks** each. There is **NO** negative marking.

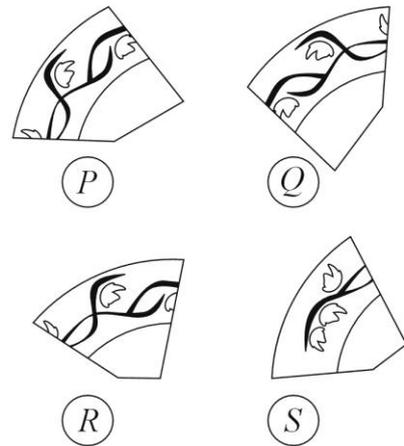
Q.1. This section contains **15 multiple choice questions**. Each question has four options, out of which **ONLY ONE** is correct. Mark the correct option with a tick  mark.

(15 × 2 = 30 Marks)

- (i) A dinner plate was broken into six pieces. Five of the pieces are indicated in Figure A. Find out the missing piece from the options given below.



Figure A



A P

C R

B Q

D S

- (ii) With respect to 'Green Buildings', consider the following statements and select the appropriate option.

1. The building materials are environmentally sustainable.
2. The building consumes less water and energy.
3. The building is designed with more greenery.
4. The building is coloured green, it being a nature-like colour.

A Only 1 is correct

B Only 1 and 2 are correct

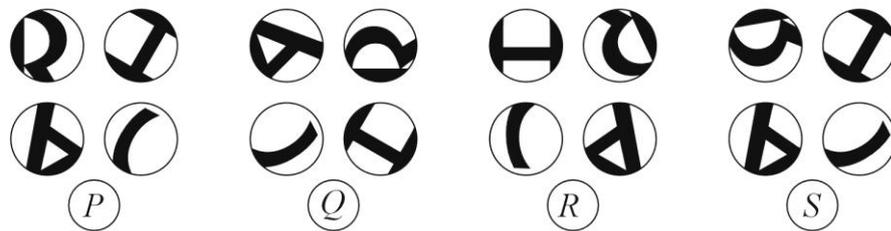
C 1, 2, and 3 are correct

D Only 3 and 4 are correct

- (iii) Four circular cutouts have been made in the text in Figure B. Identify the option with the group of those four cutouts.



Figure B



A P

C R

B Q

D S

- (iv) The mighty weight of a tree, supported through its trunk, is transferred to the ground by its roots. In the same way, the weight of a building is transferred to the ground through different components, i.e., beams, columns, etc. Identify the correct sequence of the components through which the weight of a building is transferred to the ground.

A Beam → Slab → Column → Foundation

B Slab → Foundation → Beam → Column

C Slab → Beam → Column → Foundation

D Column → Slab → Beam → Foundation

- (v) Which of the following materials, used in construction, is an industrial waste product?

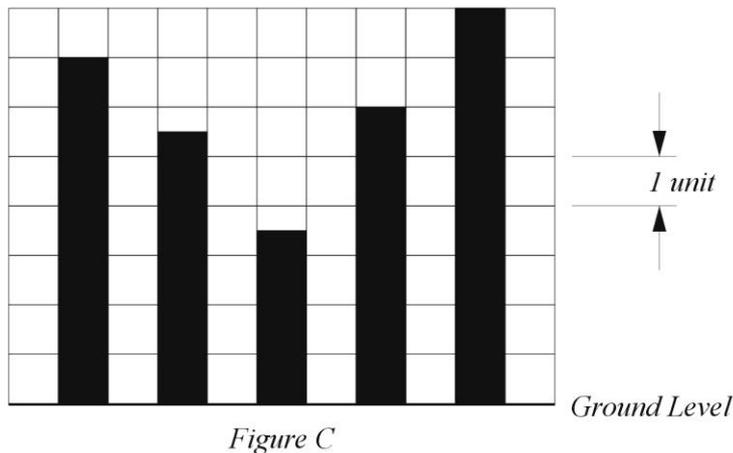
A Lime

C Sand

B Fly Ash

D Brick

(vi) Five identical pillars, having equal height of 10 units and equal cross section, are inserted into the ground. Figure C shows only the portions of the pillars visible above ground. Which of the options given below indicates the ratio of the total volume of the pillars above and below the ground.



A 3:2

C 1:1

B 2:3

D 2:1

(vii) Consider a 3D hollow geometry with six faces, and nine equal edges, as indicated in Figure D. Which of the given shapes will generate the described 3D geometry, when folded along the dotted lines?

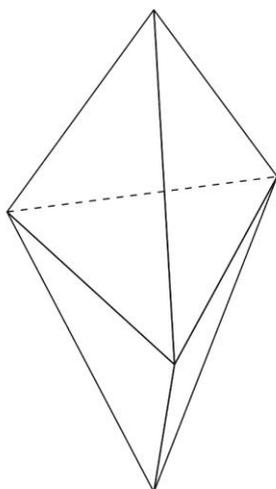
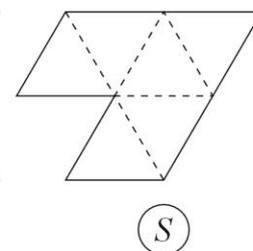
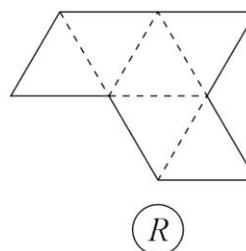
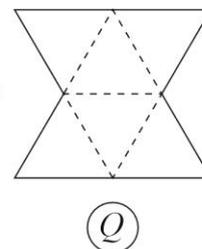
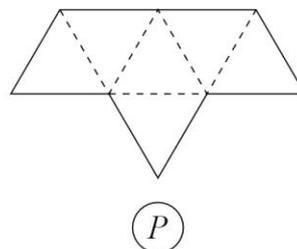


Figure D



A Only P

C P, Q, and R

B Q and R

D Only S

(viii) Considering the operation given in Figure E, what is the result of the operation in Figure F?



Figure E



Figure F



A P

C R

B Q

D S

(ix) Which of the following tasks is **NOT** a part of the job of an architect?

A Design of buildings

C Periodic site-supervision

B Estimation of construction cost

D Estimation of property taxes

(x) You overheard a conversation between X and Y in a building. The conversations were as follows:

X: I am a part of a window and can be appreciated from outside.

Y: Well, I might be invisible, but I carry the building load.

X: While I ensure light inside the room, I am not affected by the weather.

Y: I am not exposed to the weather, and people take advantage of my strength, which you don't have much.

Identify X and Y from the options given below.

A X is Glass and Y is Sand

C X is Acrylic sheet and Y is Sand

B X is Glass and Y is Reinforcement bar

D X is Stone and Y is Reinforcement bar

- (xi) A building designed by the famous Indian architect Raj Rewal was demolished in the year 2017, after much controversy. Identify the building from the given options.

- A Old Parliament House, New Delhi
- B Bharat Bhavan, Bhopal
- C Hall of Nations, Pragati Maidan, New Delhi
- D Vidhan Bhavan, Bhopal

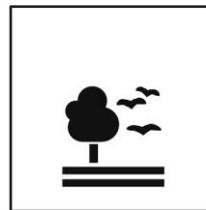
- (xii) Which of the following graphics represents the United Nations' 'Sustainable Development Goal 3 (SDG 3): Good Health and Well-being'?



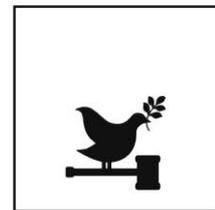
(P)



(Q)



(R)



(S)

A P

C R

B Q

D S

- (xiii) A hemispherical vessel of radius 30 cm is full of mixture to prepare kulfis. Kulfi-moulds are right circular cones of 5 cm diameter at base, having a height of 10 cm. Maximum how many kulfis can be prepared by filling the moulds up to the brim?

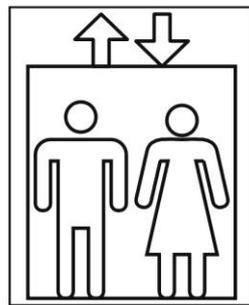
A 432

C 536

B 864

D 216

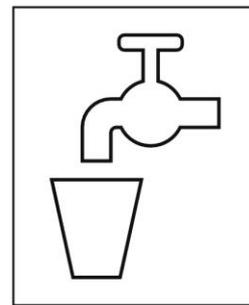
(xiv) You have sprained your ankle and are on a wheel chair. You want to join your friends for a party at the food-court located on the top floor of a shopping mall, which you are visiting for the first time. Since you are alone, and also do not know your way around, signs would help you. Which of the following signs will you require to conveniently reach your destination on your own?



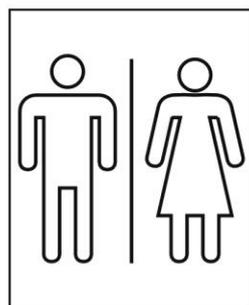
(P)



(Q)



(R)



(S)



(T)



(U)

A Only U and T

C Only Q and T

B R, S, and T

D Only Q

(xv) Identify the last figure in the sequence shown in Figure G.

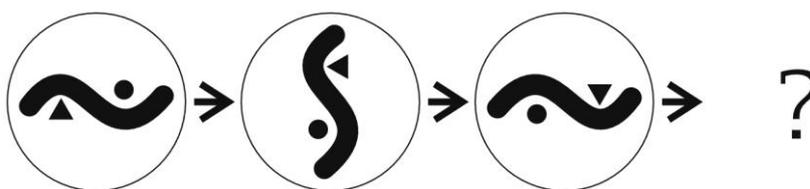
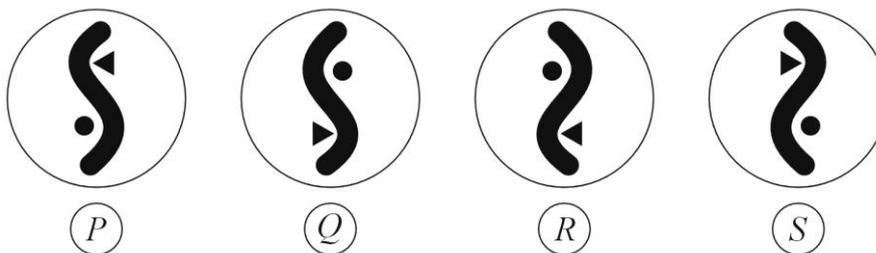


Figure G



A P

C R

B Q

D S

Q.2 Match the transport infrastructure described in Column I, with their names and locations in Column II.

(5 × 2 = 10 Marks)

Column I	Column II
(A) India's longest road bridge on sea <input type="checkbox"/>	(P) Atal Setu, Maharashtra
(B) India's longest road bridge on river <input type="checkbox"/>	(Q) Atal Bridge, Gujarat
(C) India's longest rail-cum-road bridge <input type="checkbox"/>	(R) Bogibeel Bridge, Assam
(D) India's highest rail bridge <input type="checkbox"/>	(S) Bhupen Hazarika Setu, Assam
(E) Pedestrian-only truss bridge <input type="checkbox"/>	(T) Chenab Bridge, Jammu & Kashmir
	(U) Worli Sea Link, Maharashtra

Q.3 Match the representative skylines in Column I, with their corresponding cities in Column II.

(5 × 2 = 10 Marks)

Column I	Column II
(A) 	<input type="checkbox"/> (P) London
(B) 	<input type="checkbox"/> (Q) Paris
(C) 	<input type="checkbox"/> (R) Barcelona
(D) 	<input type="checkbox"/> (S) Venice
(E) 	<input type="checkbox"/> (T) Sydney
	(U) New York

Q.4 Match the architectural landmarks of India in Column I, with their corresponding descriptions in Column II.

**(5 × 2 = 10 Marks)**

Column I	Column II
(A) Victoria Memorial Hall, Kolkata <input type="checkbox"/>	(P) Buddhist structure housing relics
(B) Dilwara Temple, Mount Abu <input type="checkbox"/>	(Q) Hindu temple with thousand pillared hall
(C) The Great Stupa, Sanchi <input type="checkbox"/>	(R) Colonial monument clad in marble
(D) Meenakshi Temple, Madurai <input type="checkbox"/>	(S) Jain temple with exquisite marble carvings
(E) Qutab Minar, Delhi <input type="checkbox"/>	(T) Mughal victory monument in sandstone
	(U) Sultanate brick tower clad in stone

**SECTION B: Geometrical Drawing (Maximum Marks: 60)**

- This section contains **THREE (03)** questions. Each question carries **20** marks.

Q.5 The front elevation of a city hoarding is shown in Figure H. Given below (Figure I) is the outline of the human-eye view of the hoarding. Fill it up with text and graphic elements indicated in Figure H, maintaining geometry and proportion. Use the indicative grid provided.



Figure H

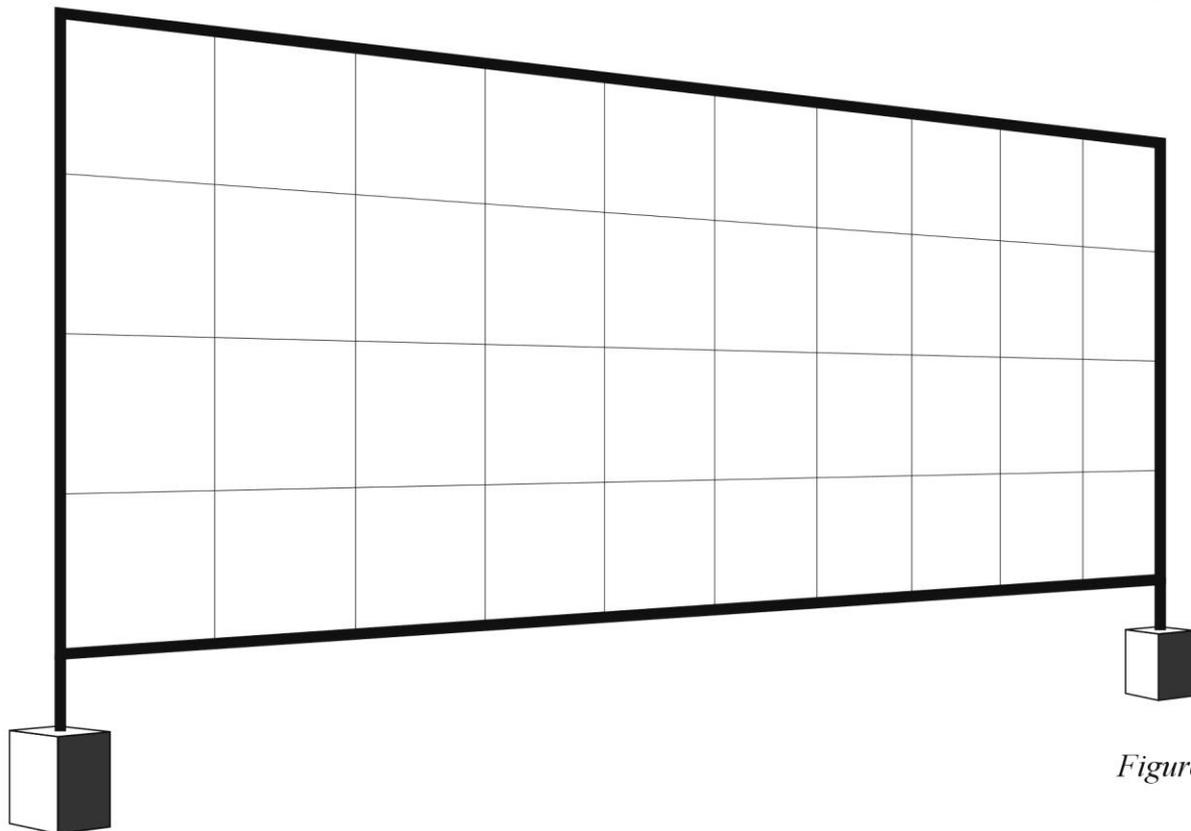
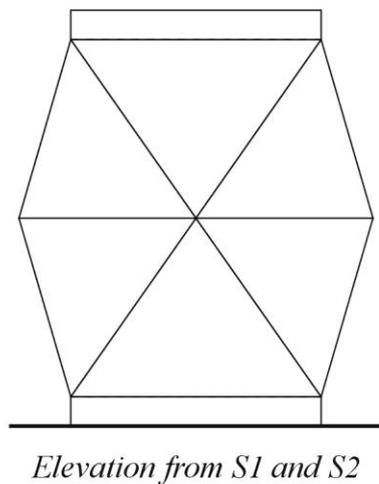
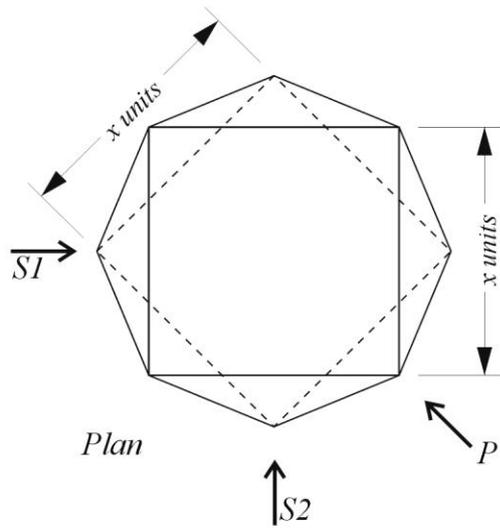
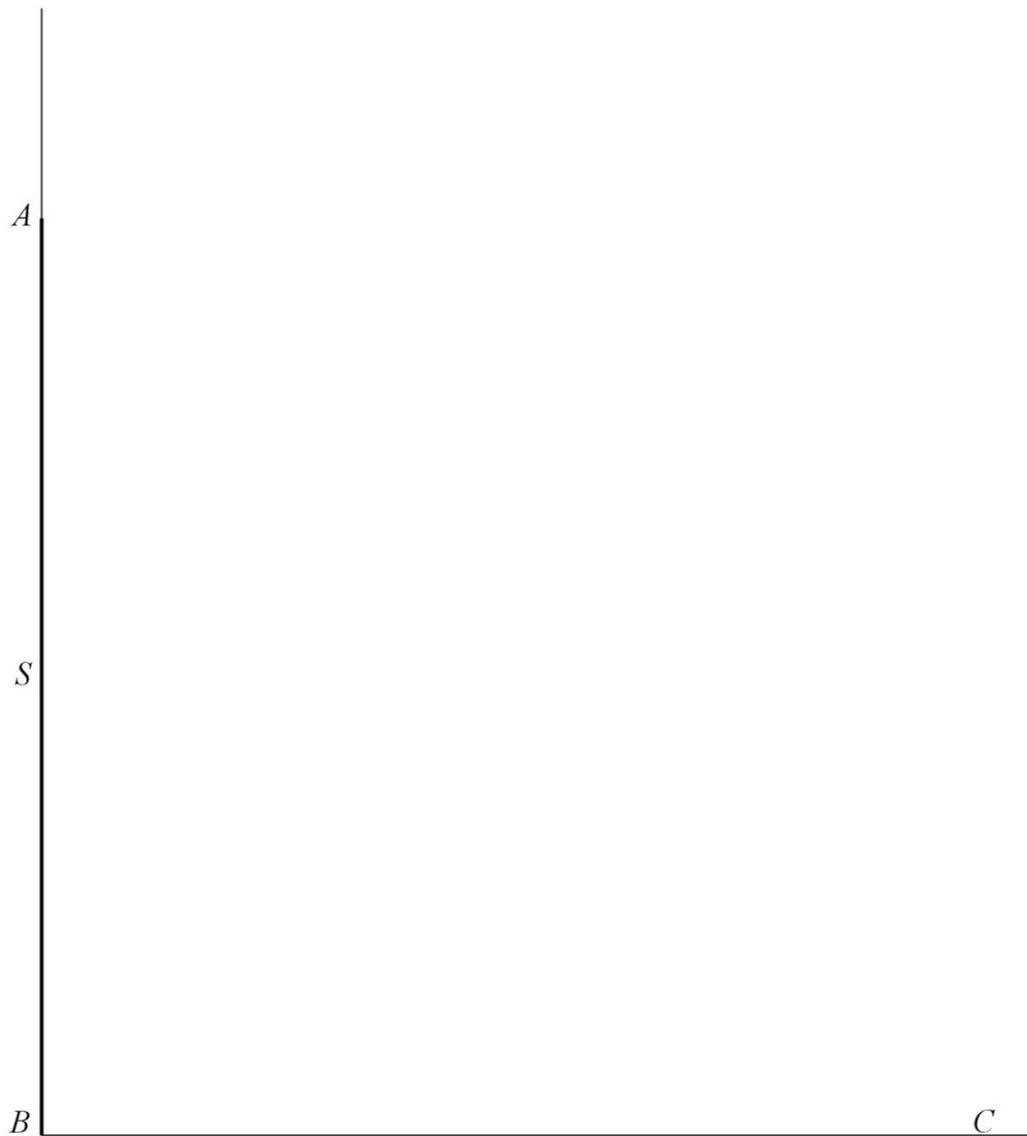


Figure I

Q.6 A table lamp designed with simple geometrical forms is shown below in plan, and elevations from  $S1$  and  $S2$ . Draw the elevation of the same lamp from the direction  $P$ , as indicated in the plan.



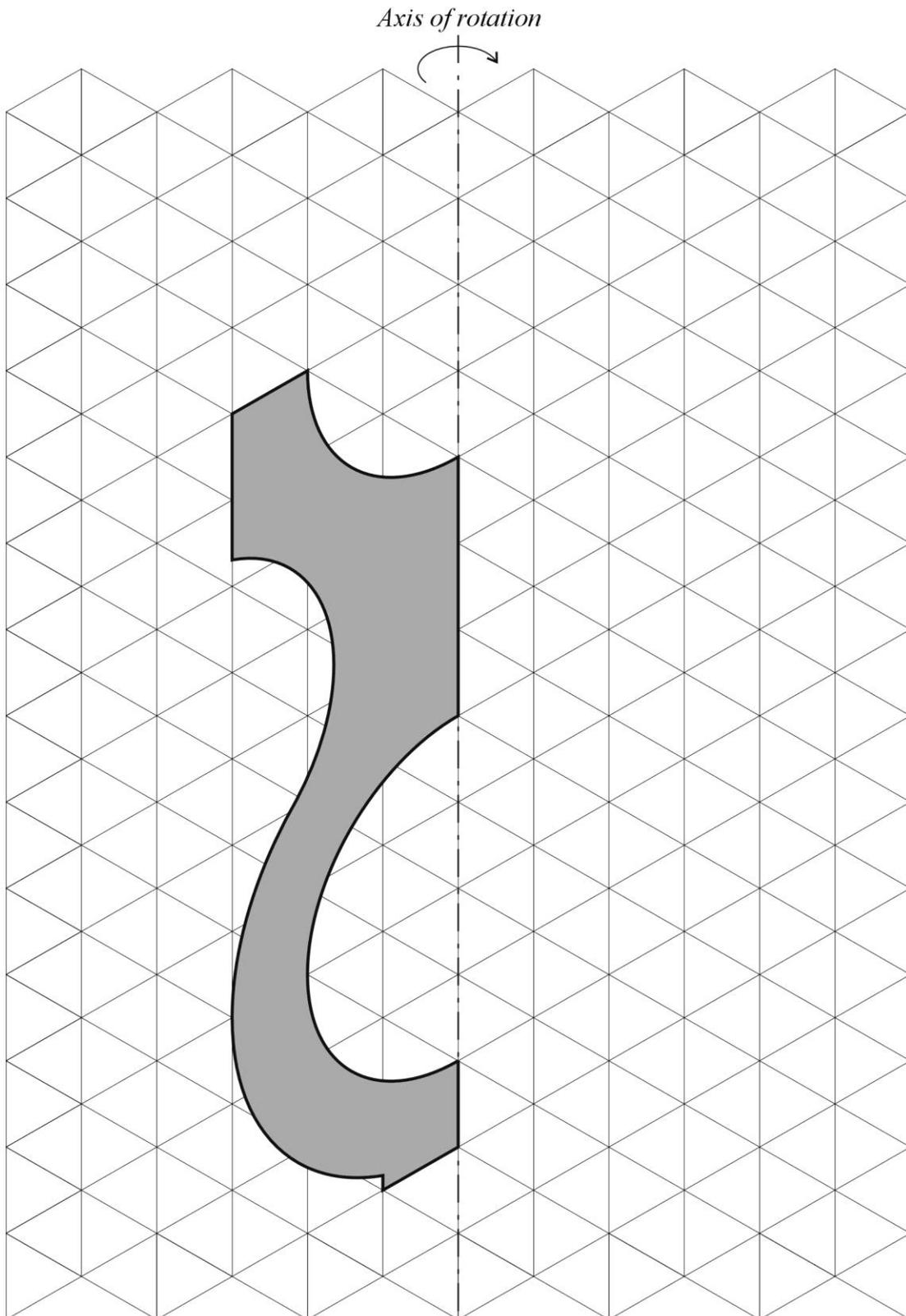
- Q.7 A rod  $AB$  of length 8 units, having mid-point at  $S$ , is in a vertical position as shown below. The end  $A$  is sliding vertically down, while end  $B$  is moving horizontally to your right till it reaches the point  $C$ , which is 8 units from the point  $B$ . Draw the locus of the mid-point  $S$ , using a minimum of 8 positions of  $AB$ .



**SECTION C: 3D Perception (Maximum Marks: 60)**

- This section contains **THREE (03)** questions. Each question carries **20** marks.

Q.8 *The shaded plane given below is rotated clockwise around the given axis, up to an angle of 270 degrees. Draw the solid form resulting from this rotation.*



Q.9 The schematic plan, front elevation, and side elevation, of an office building block are given below. The direction of the incident sunrays is indicated as 'S'. Sketch the shading and shadows that would be generated by the sunrays in the view of the building block provided in Figure J.

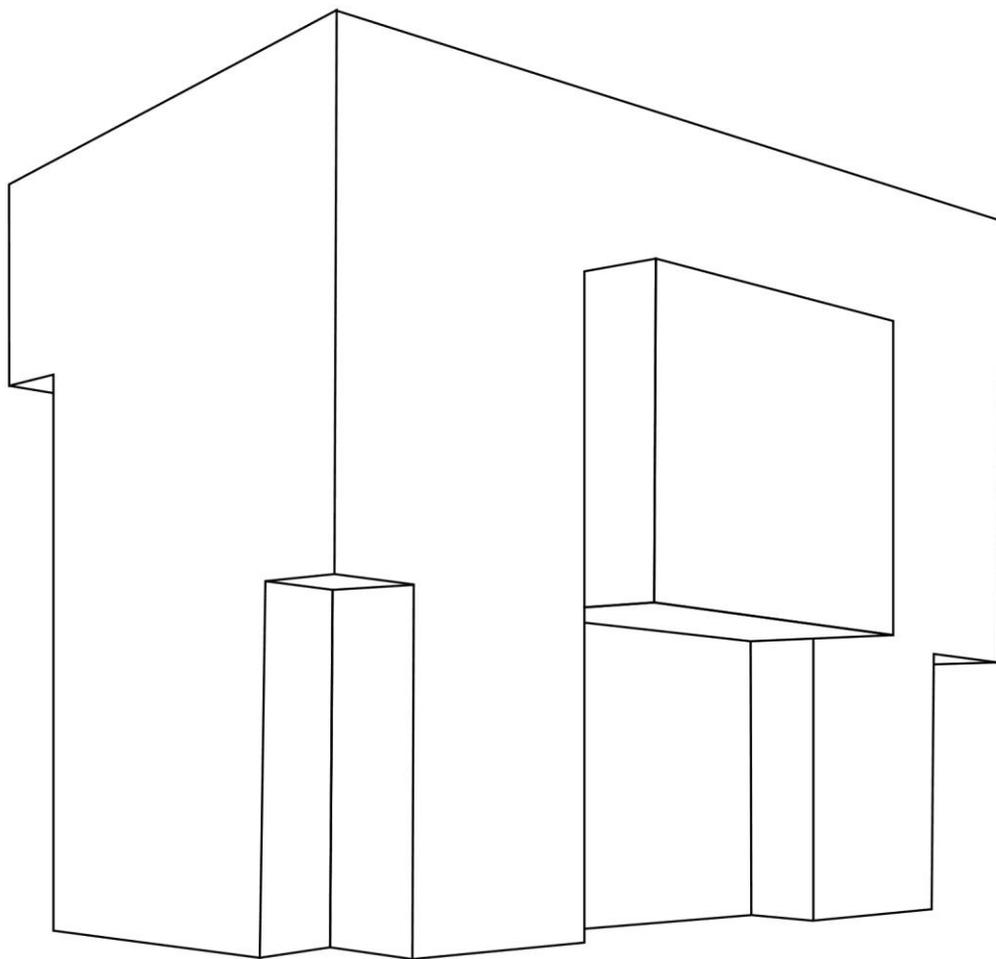
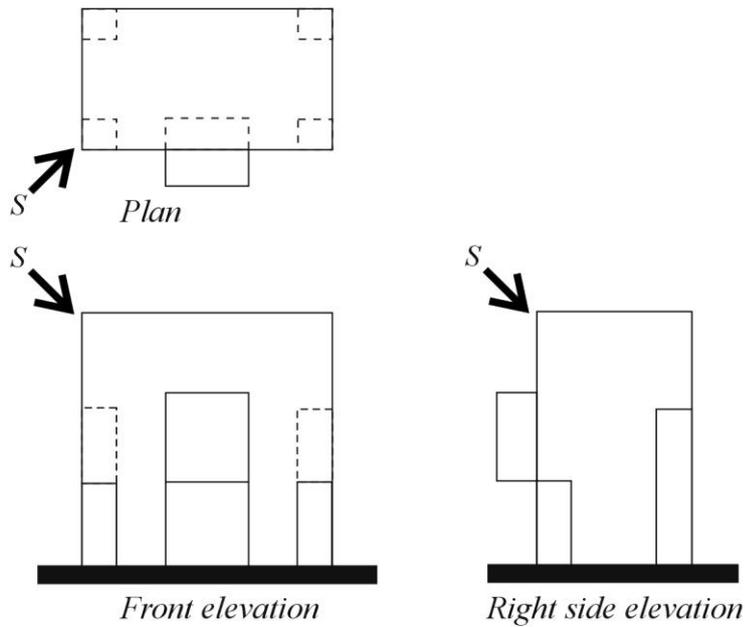


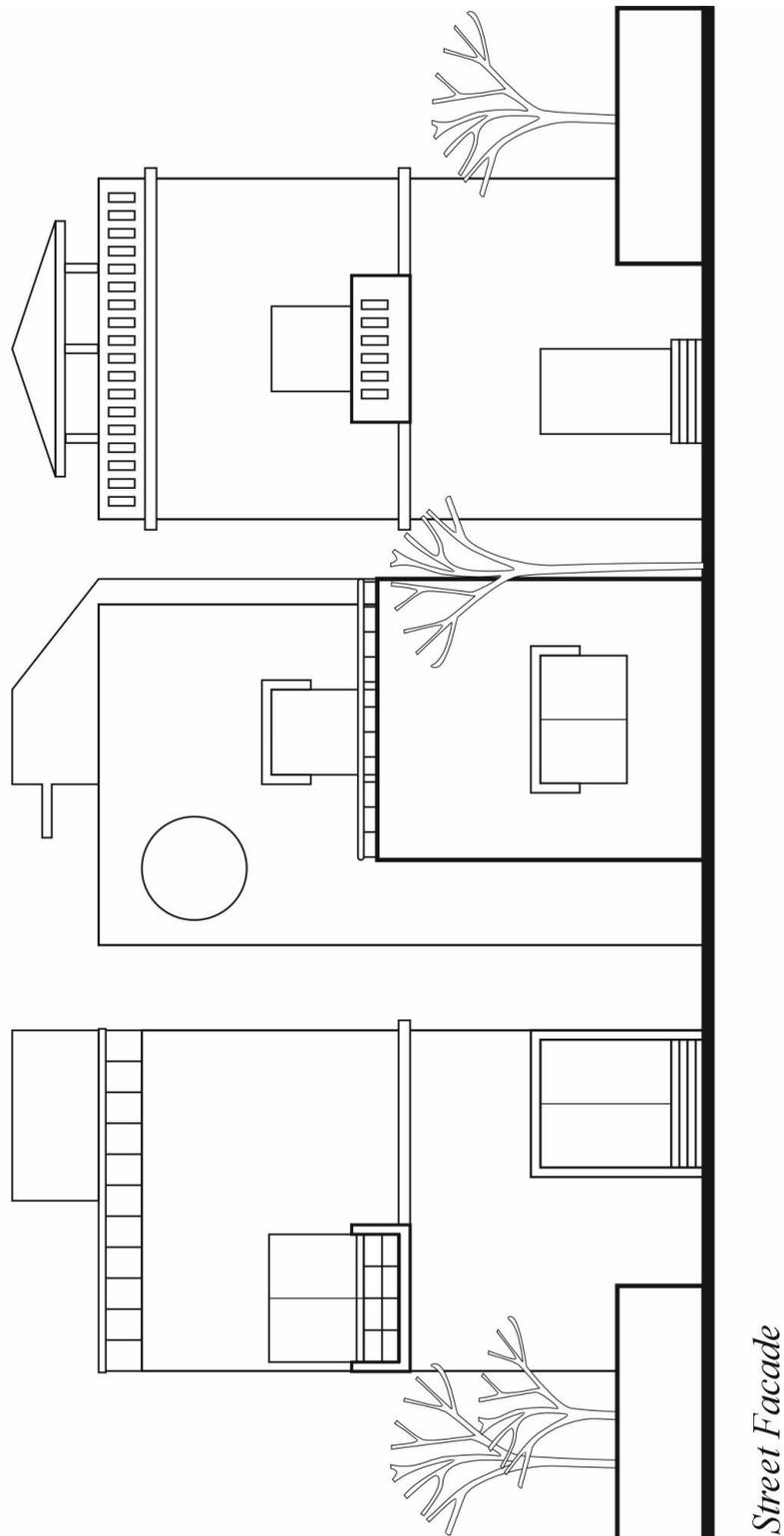
Figure J



**SECTION D: Imagination and Aesthetic Sensitivity (Maximum Marks: 60)**

- This section contains **THREE (03)** questions. Each question carries **20** marks.

Q.11 *Certain cities across the globe are known by their uniquely coloured street façades. Colour the given street façade with minimum three colours of your choice. The façade elements such as cornice, entry steps, door, window, parapet etc. are to be considered while planning the colour scheme for the street façade.*



Q.12 Below is the story of a hare and a tortoise narrated in four scenes. Fill up the blank frames with appropriate illustrations to complete the narration. You may add text balloons, if required.

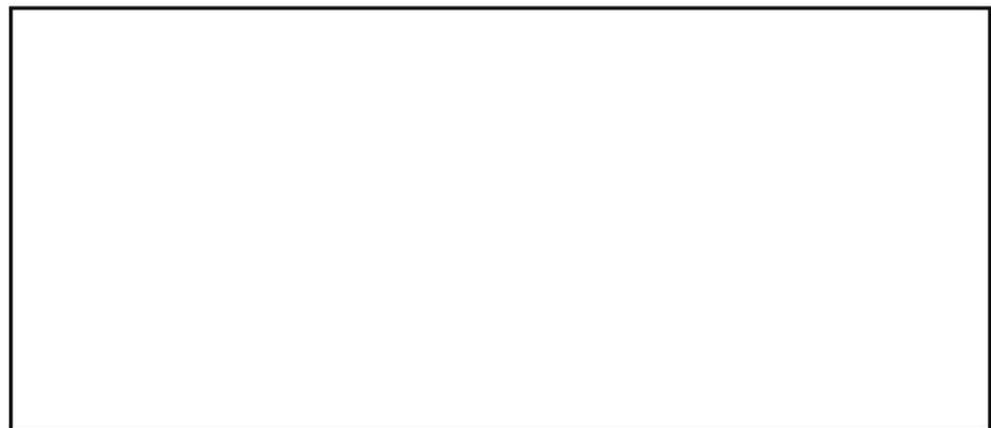
**SCENE 1**

Once upon a time, Hari, the hare, challenged Tiku, the tortoise, to beat him in a race.



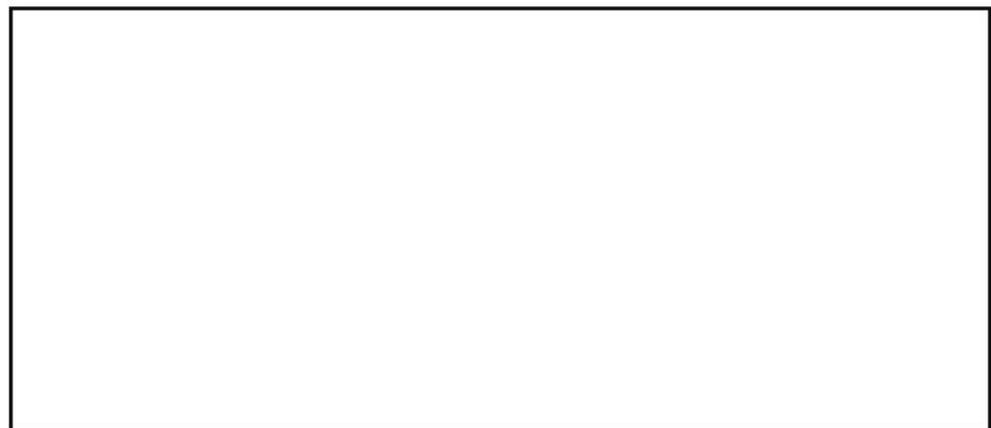
**SCENE 2**

Hari ran fast, and soon Tiku was left far behind. This made Hari feel confident of winning the race.



**SCENE 3**

Hari, being a little tired, decided to take a short nap, while Tiku carried on with the race, at his own pace.



**SCENE 4**

Eventually, Tiku crosses Hari, reaches the finish line, and wins the race.

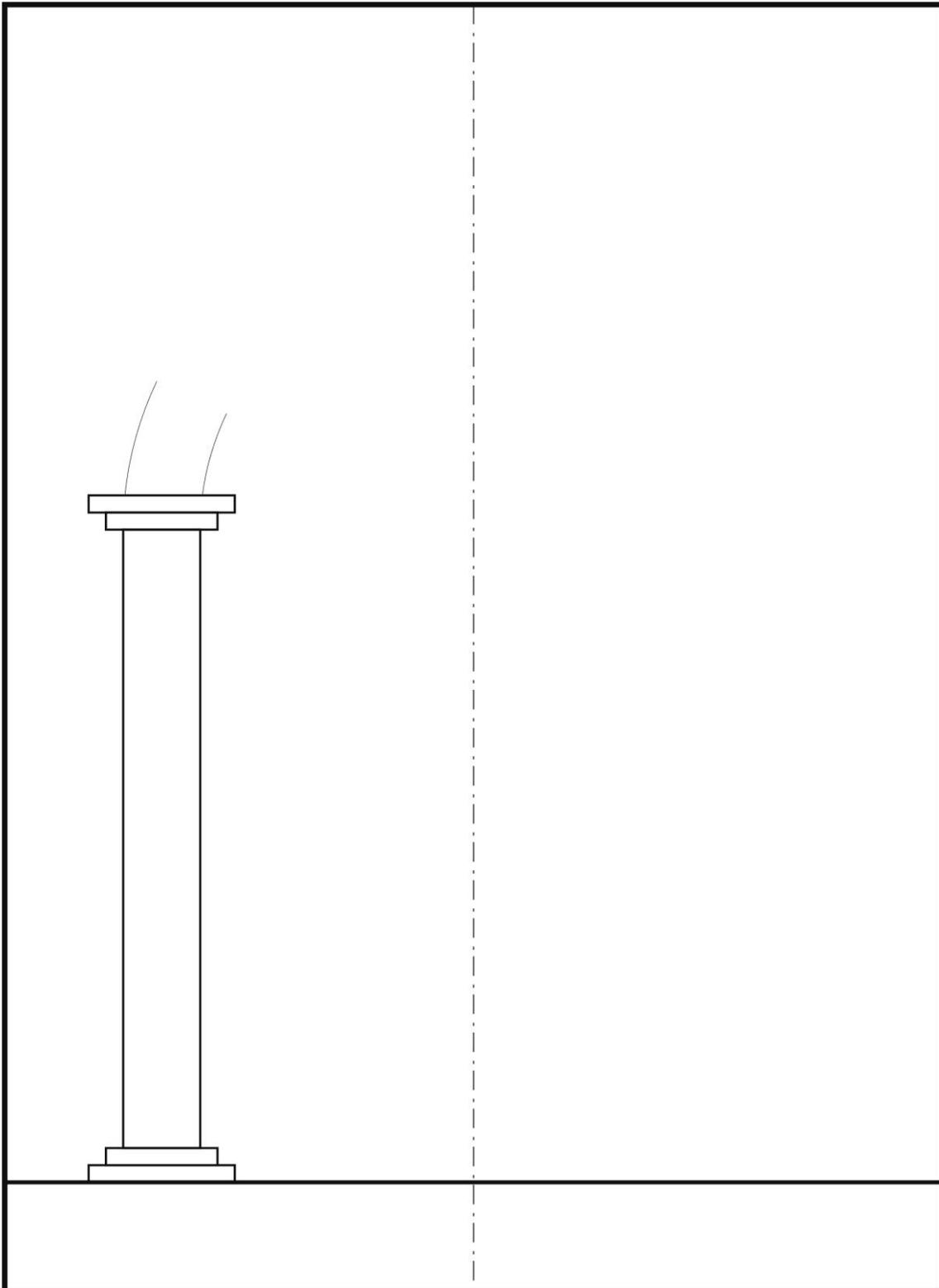


- Q.13 *Re-using waste material is an accepted principle of sustainability. Used tyres are one such waste material. You are required to design and sketch a utility object made of tyres, which could be of different sizes and types (e.g. bicycle, car, two wheeler tyres, etc).*

**SECTION E: Freehand Drawing (Maximum Marks: 60)**

- This section contains **THREE (03)** questions. Each question carries **20** marks.

Q.14 *An impressive entrance gateway has to be designed for a college. Make a pencil drawing of the elevation of the gateway, adding appropriate elements of your choice. Also add shade, patterns, and textures. Some indicative outline of part of the gateway, and a line of symmetry, are given below.*



- Q.15 *Make a pencil sketch of a mug that is commonly used for bathing. The sketch should also show a hand, holding the mug. The drawing should be of appropriate form and proportion, showing various parts, materials, and textures, along with shades and shadows.*

Q.16 *Sketch an interior view of an examination hall, depicting the scene of an examination in progress.*

**END OF THE QUESTION PAPER**

## ROUGH WORK

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**DO NOT WRITE ON THIS PAGE****Section-wise Distribution of Marks**

<b>Sections</b>	<b>Question No.</b>	<b>Page No.</b>	<b>Maximum Marks</b>	<b>Marks Obtained</b>
<b>Section A (Architectural Awareness)</b>	<b>Q. 1</b>	<b>03-09</b>	<b>30</b>	
	<b>Q. 2</b>	<b>09</b>	<b>10</b>	
	<b>Q.3</b>	<b>10</b>	<b>10</b>	
	<b>Q.4</b>	<b>11</b>	<b>10</b>	
<b>Section B (Geometrical Drawing)</b>	<b>Q.5</b>	<b>12</b>	<b>20</b>	
	<b>Q.6</b>	<b>13</b>	<b>20</b>	
	<b>Q.7</b>	<b>14</b>	<b>20</b>	
<b>Section C (Three Dimensional Perception)</b>	<b>Q.8</b>	<b>15</b>	<b>20</b>	
	<b>Q.9</b>	<b>16</b>	<b>20</b>	
	<b>Q.10</b>	<b>17</b>	<b>20</b>	
<b>Section D (Imagination and Aesthetic Sensitivity)</b>	<b>Q.11</b>	<b>18</b>	<b>20</b>	
	<b>Q.12</b>	<b>19</b>	<b>20</b>	
	<b>Q.13</b>	<b>20</b>	<b>20</b>	
<b>Section E (Freehand Drawing)</b>	<b>Q.14</b>	<b>21</b>	<b>20</b>	
	<b>Q.15</b>	<b>22</b>	<b>20</b>	
	<b>Q.16</b>	<b>23</b>	<b>20</b>	
<b>TOTAL MARKS</b>			<b>300</b>	