CAREERS 360
PREPARATION Series

Official UCEED 2024

Question Paper with Answers Key

UCEED 2024 ANSWER KEY

SECTION – 1 (NAT)									
Q. No.	**KEY RANGE**	**Q. No.**	**KEY RANGE**	**Q. No.**	**KEY RANGE**	**Q. No.**	**KEY RANGE**	**Q. No.**	**KEY RANGE**
01	7	**02**	24	**03**	8563	**04**	72	**05**	48
06	4	**07**	60	**08**	615 – 645	**09**	5.00 – 5.35	**10**	1500
11	75	**12**	32.5 – 34.5	**13**	141	**14**	13		

SECTION – 2 (MSQ)									
Q. No.	**KEYS**	**Q. No.**	**KEYS**	**Q. No.**	**KEYS**	**Q. No.**	**KEYS**	**Q. No.**	**KEYS**
15	A, C	**16**	A, B	**17**	B, D	**18**	A, B	**19**	B, D
20	A, B, C	**21**	A, D	**22**	A	**23**	A, B, C	**24**	A, D
25	A, B, C	**26**	A, B, D	**27**	B, C	**28**	A, D	**29**	A, C

SECTION – 3 (MCQ)									
Q. No.	**KEY**	**Q. No.**	**KEY**	**Q. No.**	**KEY**	**Q. No.**	**KEY**	**Q. No.**	**KEY**
30	C	**31**	D	**32**	B	**33**	B	**34**	C
35	C	**36**	D	**37**	C	**38**	A	**39**	B
40	D	**41**	A	**42**	A	**43**	A	**44**	C
45	B	**46**	B	**47**	D	**48**	B	**49**	C
50	C	**51**	B	**52**	A	**53**	D	**54**	B
55	A	**56**	B	**57**	B				

Undergraduate Common Entrance Examination for Design

UCEED 2024

QUESTION PAPER

Paper Specific Instructions

1. The total duration of the examination is 3 hours. The question paper contains two parts – **Part A** and **Part B**. The duration of **Part A** is **2 hours**. **Part B** will begin after **Part A** ends. The duration of Part B is **1 hour**.
2. **Part A** is divided into three sections: 1, 2 and 3. All sections are compulsory. Questions in each section are of different types. There are a total of **57 questions** in **Part A** carrying a total of 200 marks. Questions of **Part A** will appear on the computer **for the first 2 hours**. Answers to **Part A** have to be entered in the **computer within the first 2 hours**.
3. **Part B** is also compulsory and contains **2 drawing questions** of 50 marks each. Questions of **Part B** will appear on the computer **after 2 hours**. Answers to **Part B** have to be given in the **answer book** provided by the invigilator.
4. Marking scheme of **Part A** is as follows:

Section	Type of questions	Number of questions	Marks for correct answer	Marks for wrong answer	Marks for each question not attempted	Total marks for the section
1	Numerical Answer Type (NAT)	14	4	0	0	56
2	Multiple Select Question (MSQ)	15	Partial Marking	−1	0	60
3	Multiple Choice Question (MCQ)	28	3	−0.71	0	84
Total		57				200

5. **Section 1: Numerical Answer Type (NAT):** 14 questions (4 marks each; **no negative** marks). For these questions, **the answer is a number** that needs to be entered using the virtual keyboard on the computer screen. No choices will be shown for these questions. Questions from 1 to 14 belong to this section.
6. **Section 2: Multiple Select Questions (MSQ):** 15 questions. Each MSQ may have **one or more than one correct choice(s)** out of the four given. The following is the marking scheme:

   Full Marks: **(+4)** *If only (all) the correct option(s) is(are) chosen and NONE of the incorrect options is chosen.*

   Partial Marks: **(+3)** *If all the four options are correct but ONLY three options are chosen and NONE of the incorrect options is chosen.*

Partial Marks: **(+2)** *If three or more options are correct but ONLY two options are chosen, both of which are correct and NONE of the incorrect options is chosen.*

Partial Marks: **(+1)** *If two or more options are correct but ONLY one option is chosen and it is a correct option and NONE of the incorrect options is chosen.*

Zero Marks: **(0)** *If NONE of the options are chosen (i.e. the question is unanswered).*

Negative Marks: **(-1)** *In all other cases.*

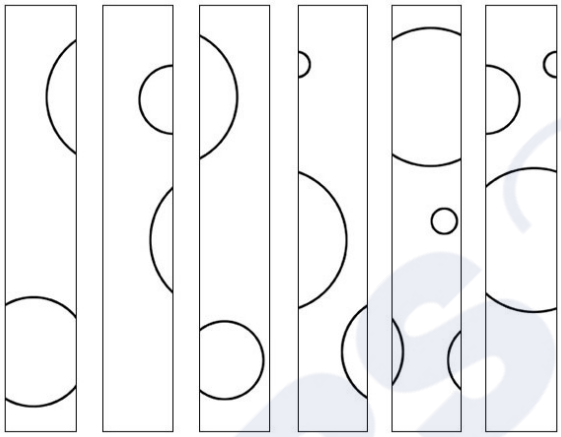
Questions from 15 to 29 belong to this section.

7. **Section 3: Multiple Choice Questions (MCQ):** 28 questions (3 marks each for the correct answer; 0.71 negative marks for incorrect answers). Each MCQ has four choices out of which **ONLY ONE is the correct answer**. Questions from 30 to 57 belong to this section.
8. **Part B (100 Marks)** contains **two drawing questions** of 50 marks each. Both questions in **Part B** are mandatory. There is NO NEGATIVE marking in this section. Questions 58 and 59 belong to this section.
9. Calculators, charts, graph-sheets, mathematical tables, mobile phone, watches of any type and other electronic gadgets are **NOT** allowed in the examination hall.
10. Blank sheets of paper will be provided for rough work.

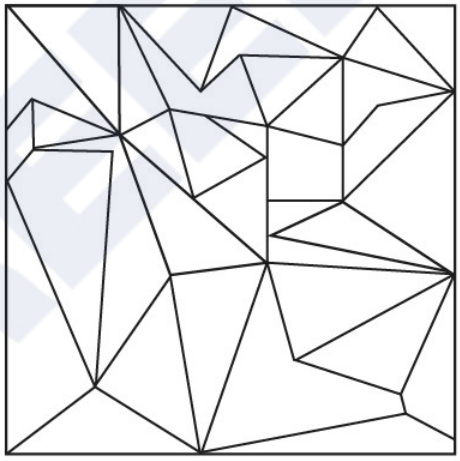
PART A

Section 1: Numerical Answer Type (NAT)

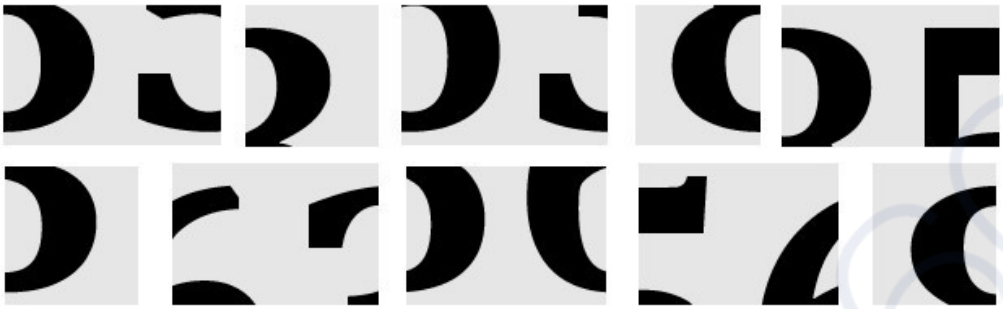
Q.01 What is the maximum number of complete circles that will be seen, if the strips given below are re-arranged without rotating?



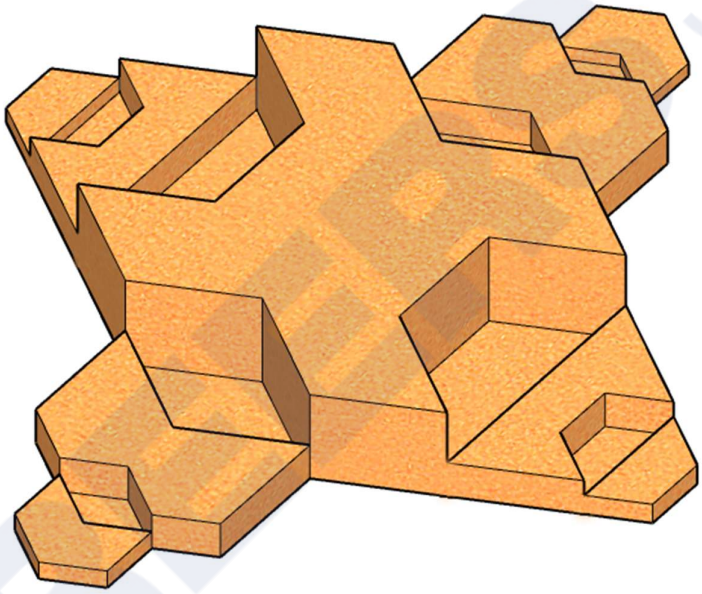
Q.02 What is the total number of triangles in the figure given below?



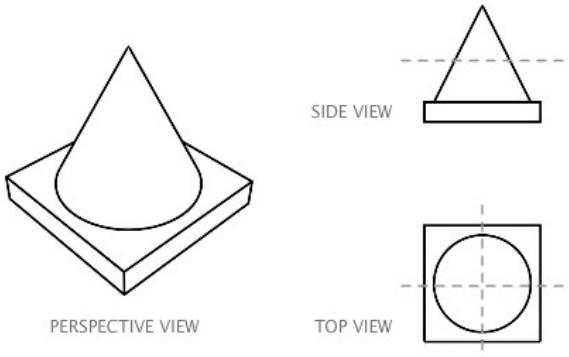
Q.03 Given below are ten pieces of a puzzle. When arranged correctly they form a four-digit number. What is the number formed after the correct arrangement?



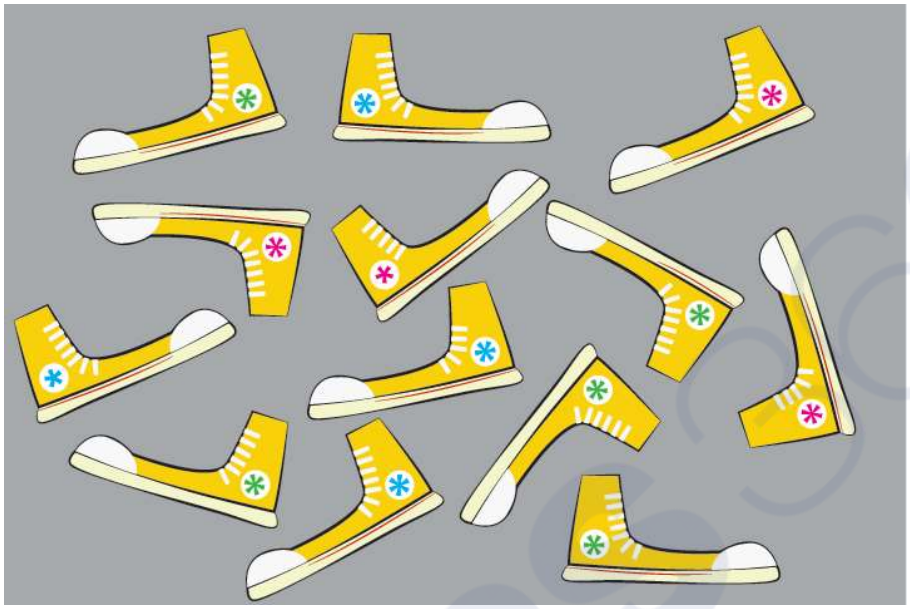
Q.04 A perspective view of a solid is shown below. The solid is symmetrical, and hidden surfaces such as the base are flat. What is the total number of surfaces in the solid?



Q.05 A perspective view of a solid object is shown on the left. The object is cut simultaneously along THREE perpendicular planes as shown on the right. How many surfaces will the resulting pieces have in total (i.e. sum of the surfaces of all pieces)?



Q.06 How many matching pairs of shoes (both left and right shoe) are present in the image below?



Q.07 A typical football is made by stitching together 12 pentagons and 20 hexagons. How many vertices (junctions) are there in such a football?

Q.08 A vehicle with a wheel arrangement is shown in Figure (i). This vehicle is travelling along a circular path as shown in Figure (ii). The wheels do not change their orientation while moving along the circular path. Figure (iii) shows the location of the centres of the wheels. The distance between the centres of Wheel-3 and Wheel-2 is 170 cm, and the distance between the centres of Wheel-1 and Wheel-2 is 180 cm. The radius of the circular path followed by Wheel-2 is 525 cm. What is the radius of the path followed by Wheel-1 in cm?

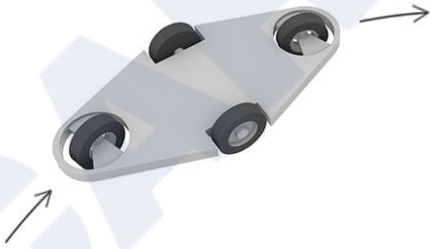


Figure (i)

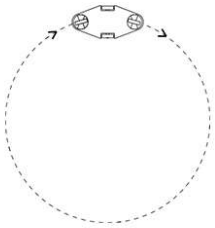


Figure (ii)

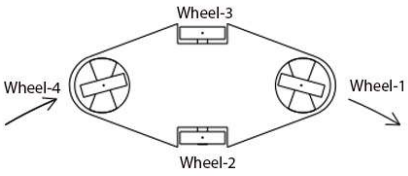
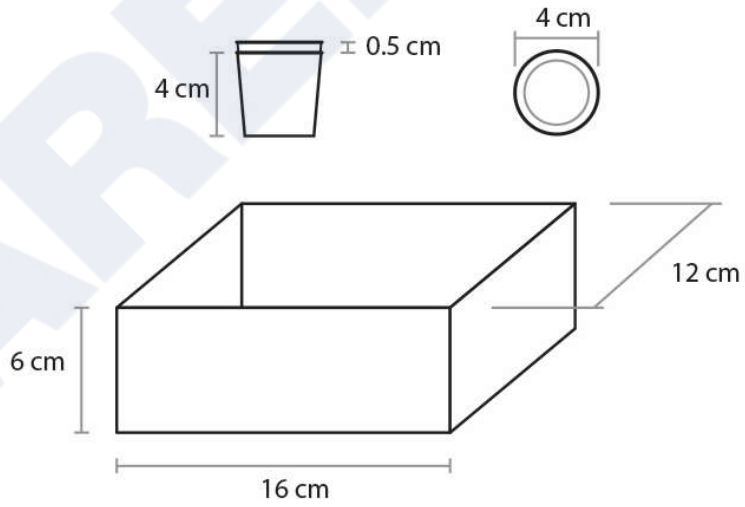


Figure (iii)

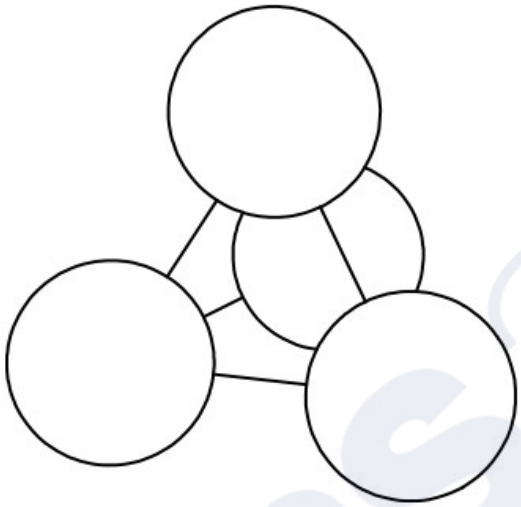
Q.09 Shown below is an image of a circle and six equilateral triangles. The circumference of the circle is 18.85 cm. What is the area of ONE equilateral triangle in cm^2? Assume $\sqrt{3}$ = 1.732 and π = 3.14.

Q.10 A wooden block of dimension 10cm x 20cm x 30cm is cut into equal sized planks. The cut planks are stacked one above the other to achieve a total height of 100cm exactly. If the minimum number of planks are cut to achieve this height, then what is the volume of each plank in cm^3?

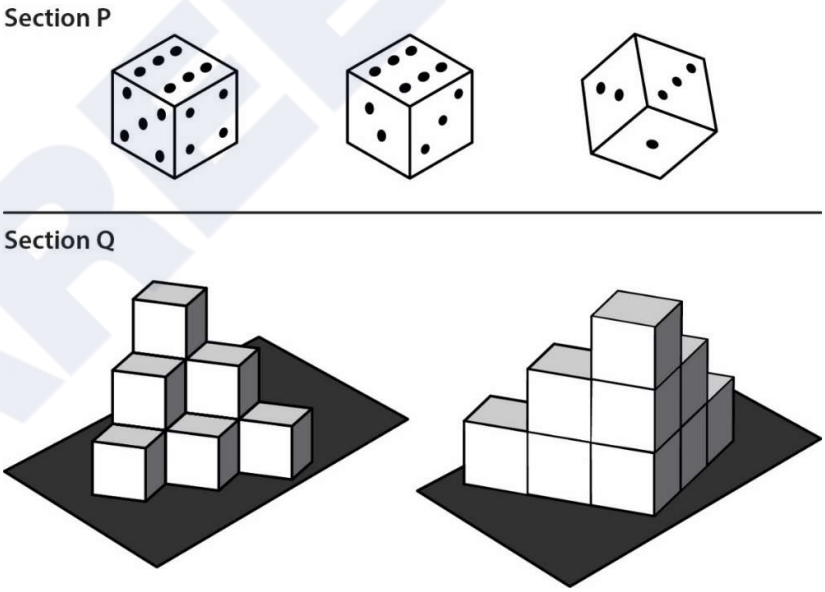
Q.11 Shown below are two stacked paper cups and a box with their dimensions. If stacking is allowed, then what is the maximum number of cups that can be stored in the box without deforming the cups?



Q.12 Shown below is a configuration of FOUR solid spheres each of radius 40cm that are placed on four corners of a regular tetrahedron with side 120cm. The centres of the spheres coincide with the corners of the tetrahedron. What is the radius (in cm) of the largest sphere that can be accommodated within the tetrahedron?

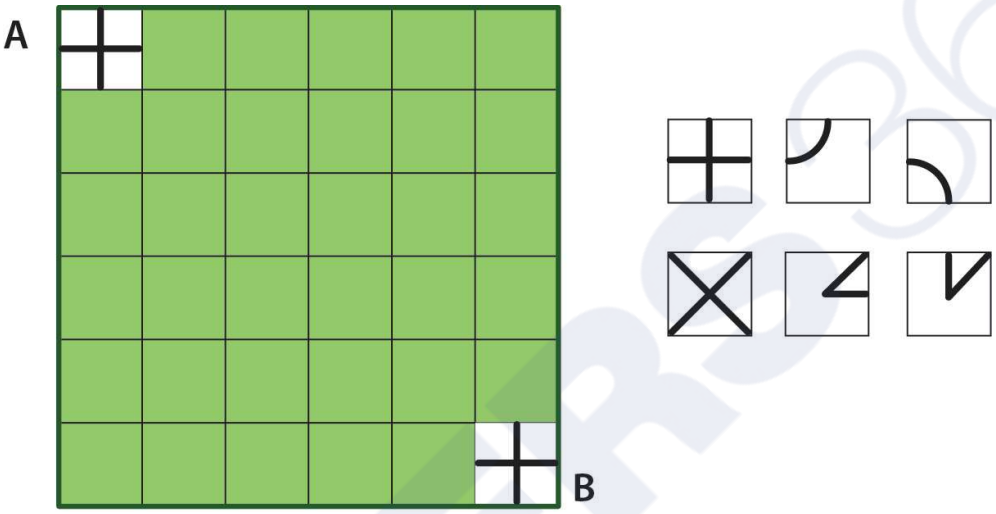


Q.13 Section P shows three views of a regular dice. TEN of such regular dice are stacked on an opaque table as shown in Section Q (two views of the same arrangement). What is the maximum sum that can be achieved adding the numbers on the visible surfaces from all angles?



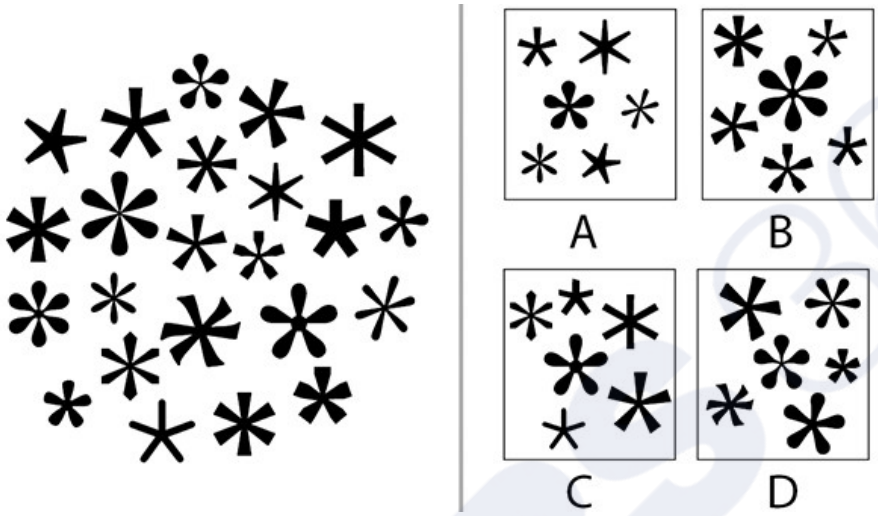
Q.14 What are the minimum number of tile pieces (shown on the right) that are required to create a path from tile A to tile B, such that ALL the following conditions are met:

- All tiles are to be used at least once.
- Tiles cannot overlap.
- The path on a tile must be connected to another path of a tile.
- The same type of tile cannot be used one-after-the other in a sequence.
- Rotation of the tiles is not allowed.
- Exclude tile A and tile B from the count.

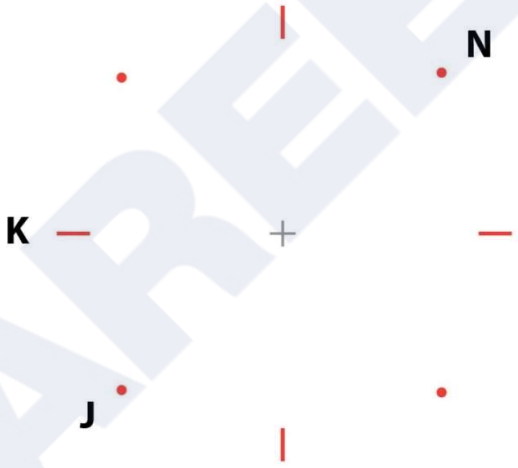


Section 2: Multiple Select Questions (MSQ)

Q.15 Which option(s) contain(s) stars that are **NOT** found in the image below?

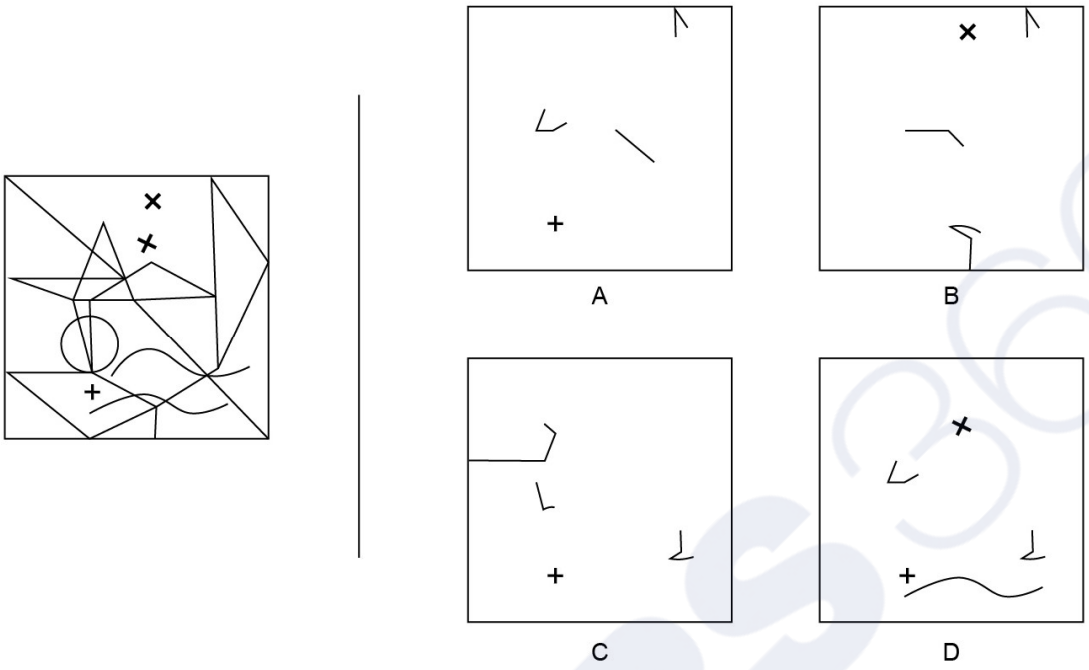


Q.16 Alphabets A to Z are arranged starting at 6′o clock, and three alphabets with their respective positions are shown in the image given below. Which of the following combinations is/are correct?

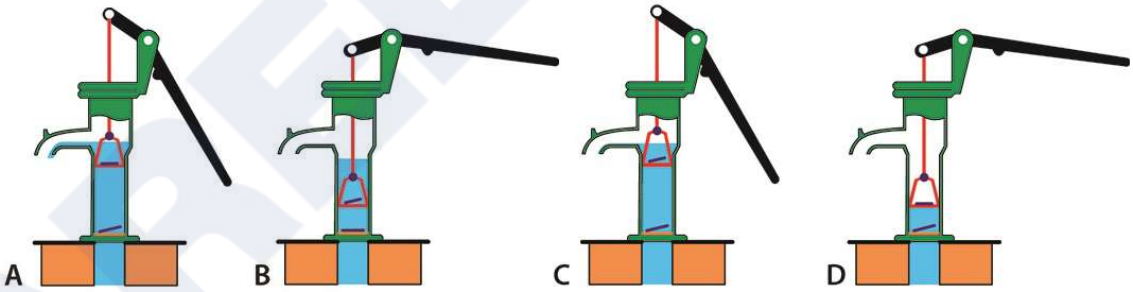


A. GOA= 3′o clock+ 3′o clock+ 6′o clock
B. SKY= 9′o clock+ 9′o clock+ 6′o clock
C. FLY= 3′o clock+ 6′o clock+ 9′o clock
D. BYE= 9′o clock+ 6′o clock+ 3′o clock

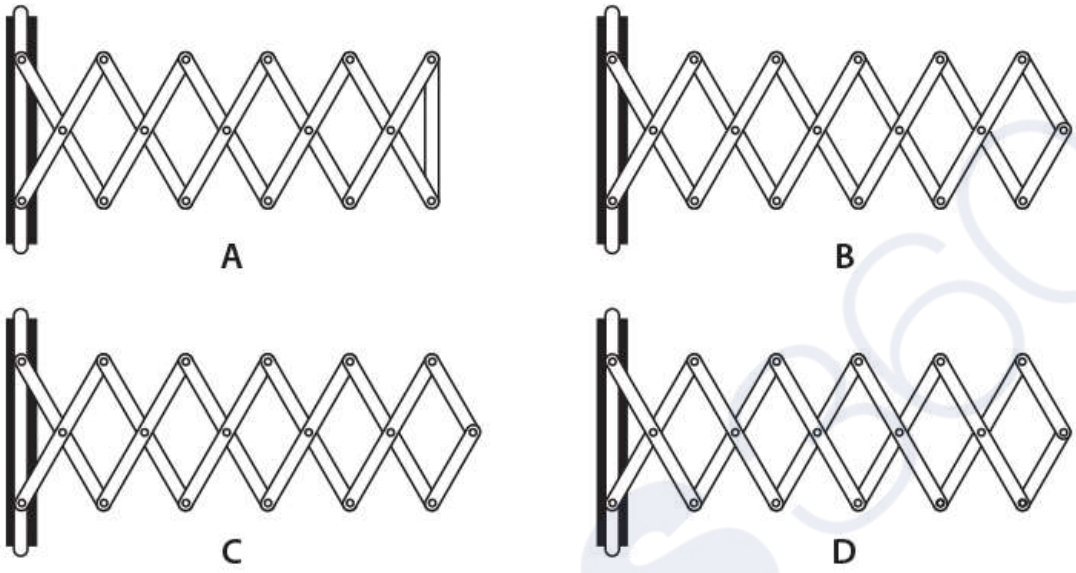
Q.17 Which option(s) contain(s) the exact fragments of the image shown on the left?



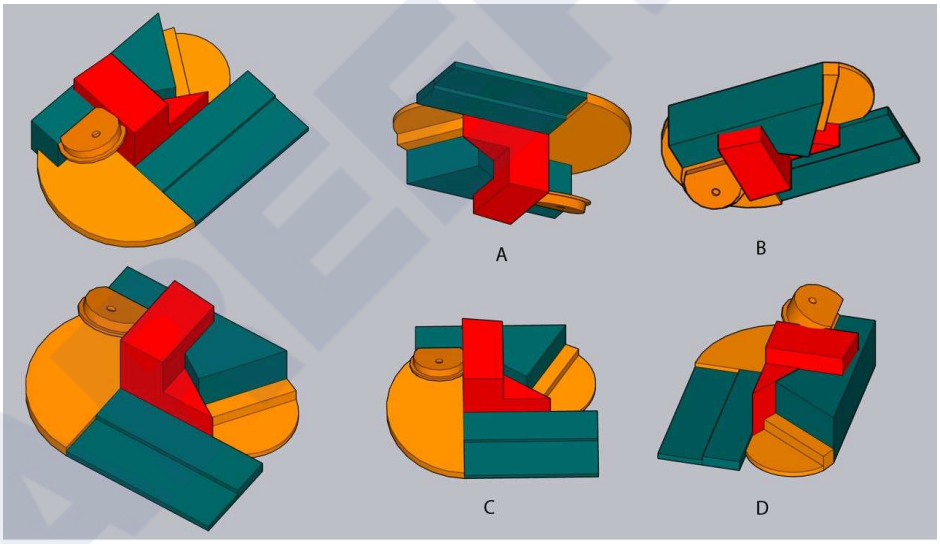
Q.18 Shown below are the vertical cross-sections of handpumps. Which of the following options depict(s) the correct working principle?



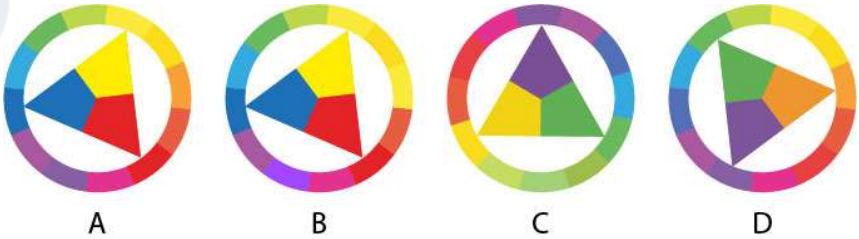
Q.19 Which of the options will collapse completely?



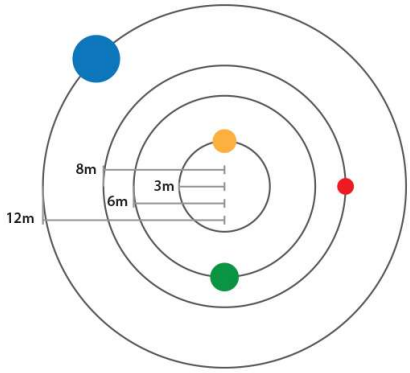
Q.20 Two views of a solid object are shown on the left. Which of the following options is/are the view(s) of the same object?



Q.21 Which of the options is/are correct according to pigment colour theory?



Q.22 Four spheres start revolving clockwise in concentric circles from their initial positions as shown below. Yellow travels at 2m/sec, green at 4m/sec, red at 2m/sec and blue at 4m/sec. Which of the following statement(s) is/are TRUE?

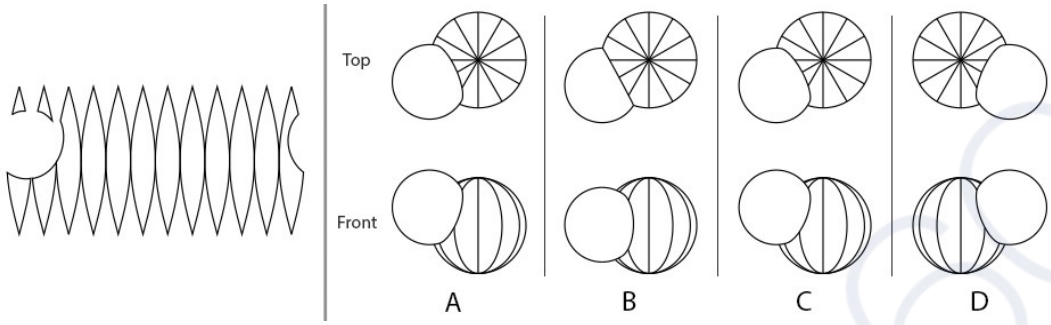


A. Yellow and green never cross (overtake) each other
B. Red and blue takes the same time to complete one revolution
C. Yellow takes less time than green to complete one revolution
D. Blue and red will cross each other twice after the first 3 complete revolutions of blue

Q.23 Shown below is a cross-section of two different trees of same species and age but found in different locations. Based on the image, which of the statement(s) is/are TRUE.

A. Growth of the tree X is more consistent than tree Y
B. Growth of the tree X is healthier than tree Y
C. Climatic conditions could be the reason for the uneven ring structures in tree Y
D. Growth of the tree Y is healthier than tree X

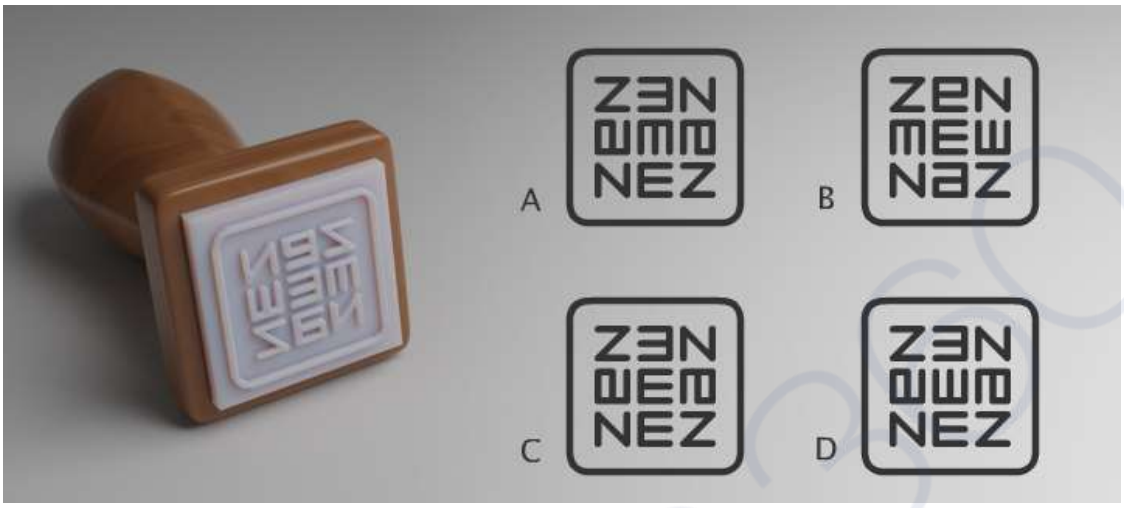
Q.24 Given on the left is the unwrapped surface of a hollow sphere that was intersected by a smaller solid sphere. Which of the options would result in this unwrapped surface?



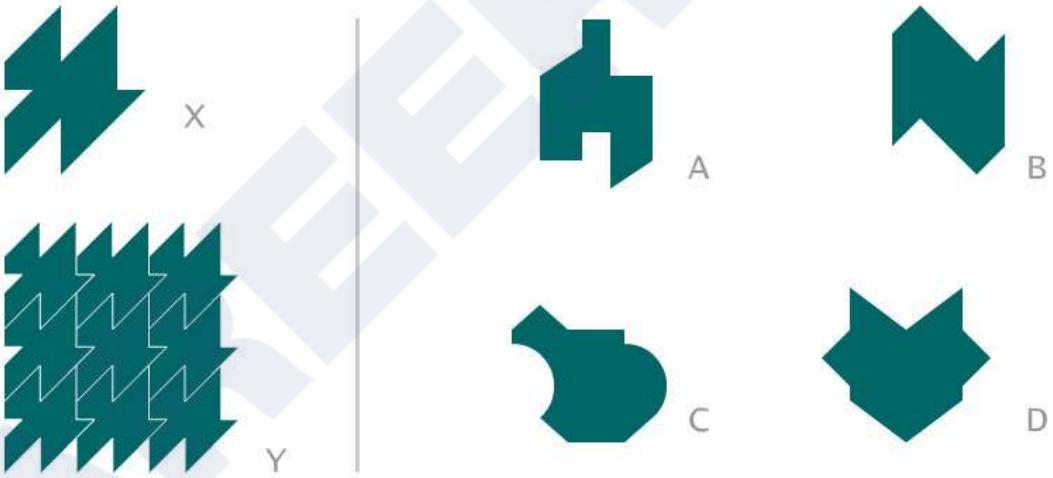
Q.25 Six concentric white rings, each of equal thickness but having different diameters, are positioned on different planes in space. A one-point perspective view of the rings is shown below. Based on this view, which of the option(s) is/are TRUE?

A. Rings 6 and 3 are closer to the viewer compared to ring 5
B. Rings 2 and 4 are at equal distance from the viewer
C. Ring 1 is the nearest to the viewer
D. Ring 5 is the farthest from the viewer

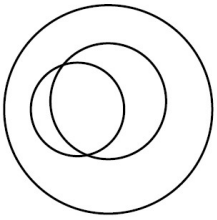
Q.26 Which of the options can be created by the stamp shown on the left?



Q.27 Tile X was used to create a pattern which is seamless (without gaps) when arranged as shown in Y. Which tile(s) from the options will create a seamless pattern?

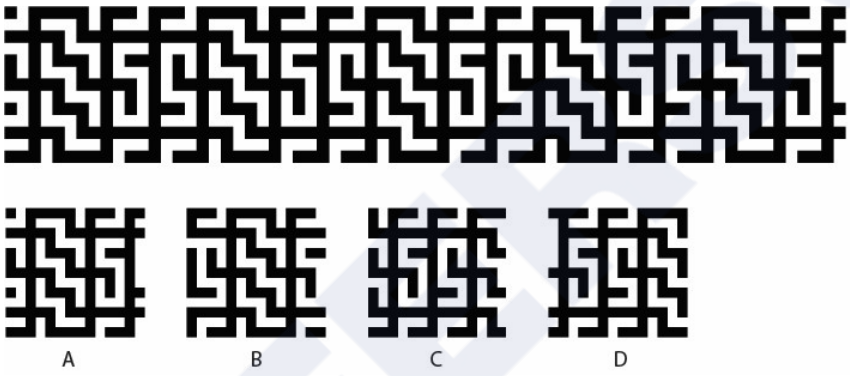


Q.28 Which of the following relationship(s) is/are represented by the Venn diagram?



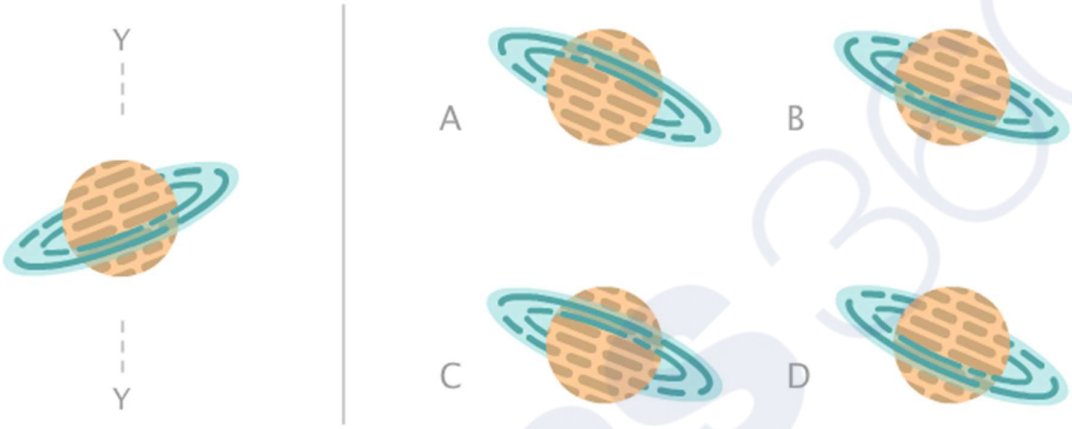
A. Beverages, Tea, Milk
B. Men, Designers, Teachers
C. Mammals, Cats, Animals
D. Singers, Performers, Actors

Q.29 Shown below is a portion of a continuous strip. Which of the option(s) is/are part of this strip?

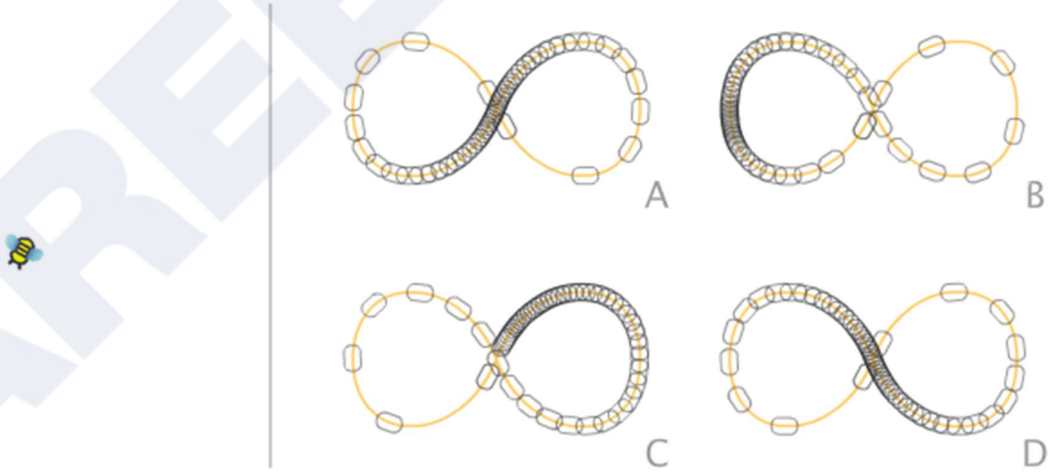


Section 3: Multiple Choice Questions (MCQ)

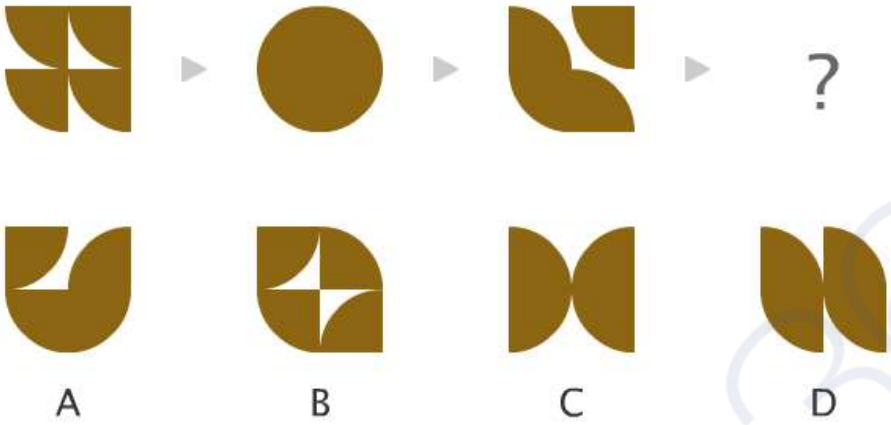
Q.30 If the image on the left is flipped horizontally (about Y-axis), and then rotated 180 degrees, what will be the resulting image?



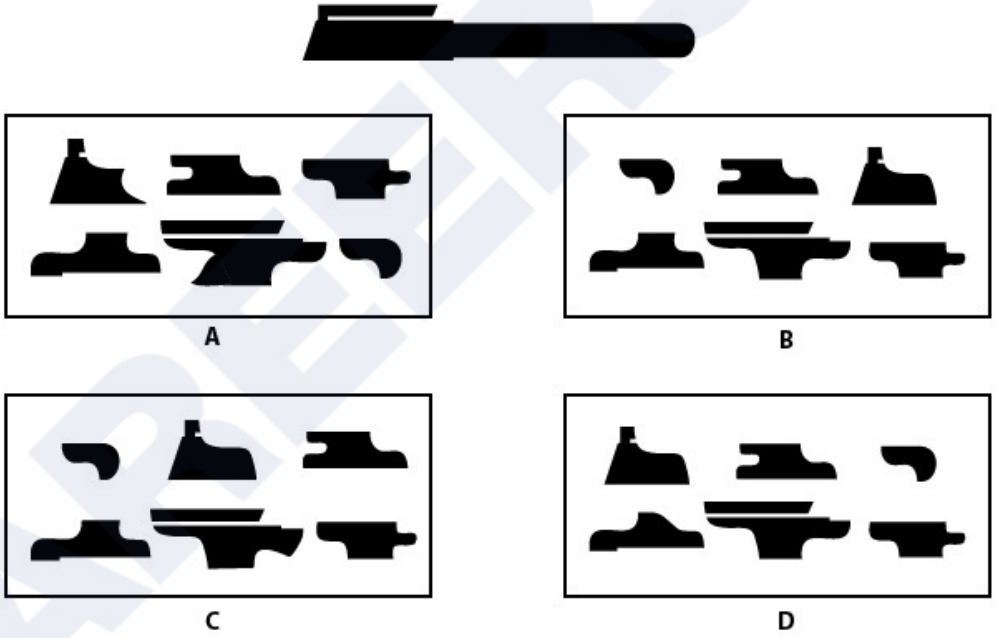
Q.31 Which option represents the key frames of the animation shown below?



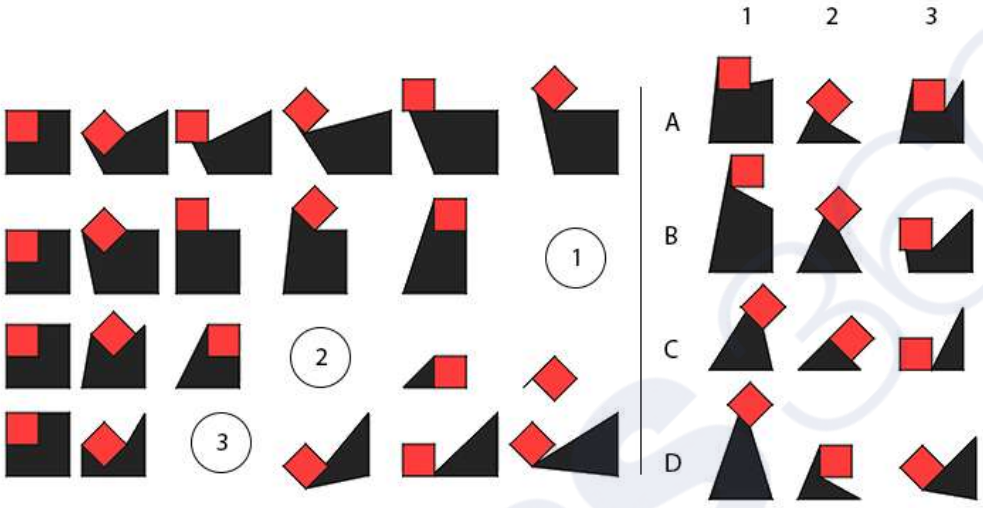
Q.32 Which option will replace the question mark?



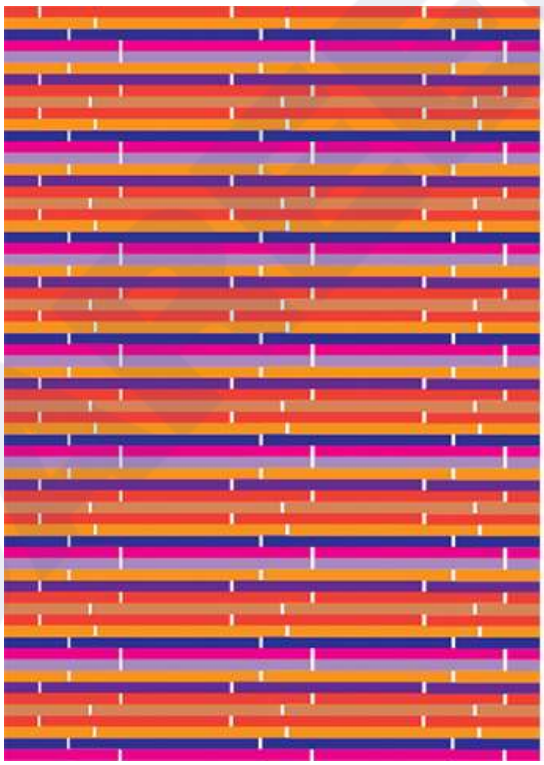
Q.33 Which collection when arranged correctly will result in the silhouette of the pen shown below?

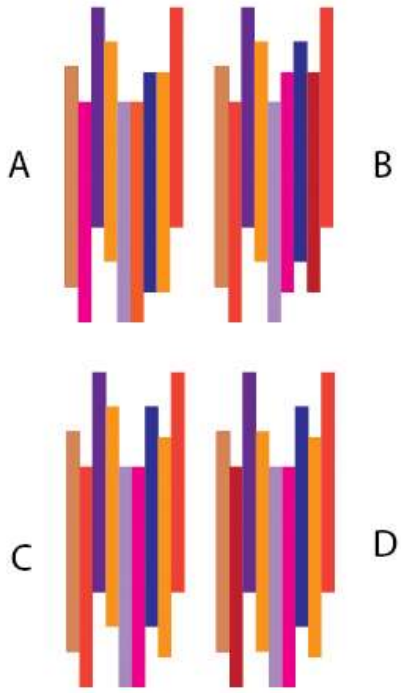


Q.34 Which option from the right will replace the circles labelled 1, 2 and 3 in the image on the left?

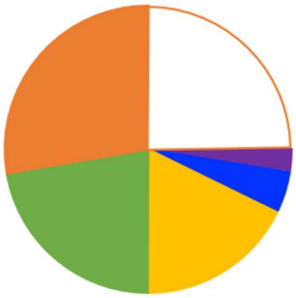


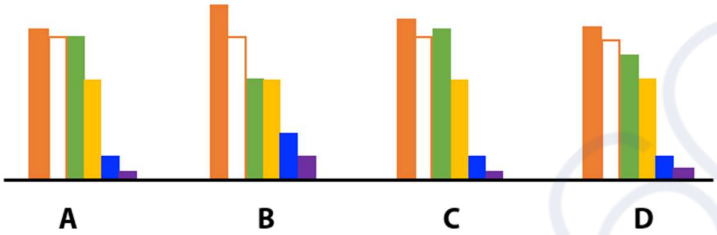
Q.35 Which option is the basic building block for the pattern made on the left?





Q.36. Which option represents the data in the pie-chart?

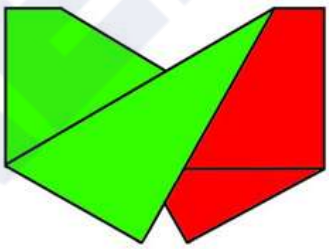


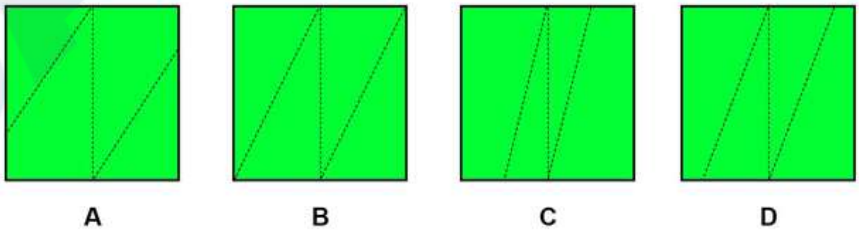


Q.37 Shutter speed is one of the parameters by which exposure of the image can be controlled. How does shutter speed control exposure?

A. By increasing the size of the opening through which light enters the camera.
B. By increasing sensitivity of the image sensor.
C. By increasing the time for light to enter the camera.
D. By increasing the number of pixels in the image.

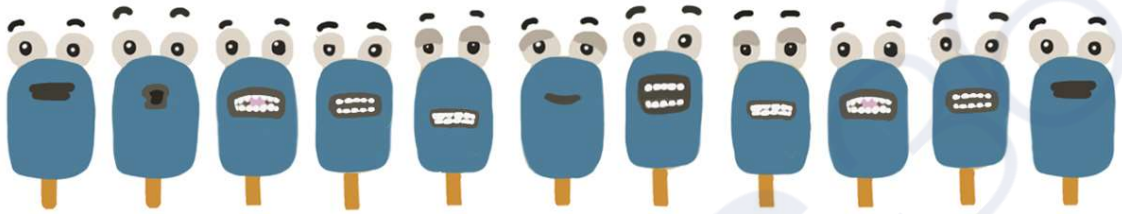
Q.38 Given below is a folded sheet of paper with green colour on one side and red colour on the other side. Dotted lines represent the fold lines. Which option shows the correct fold lines when this sheet is unfolded?



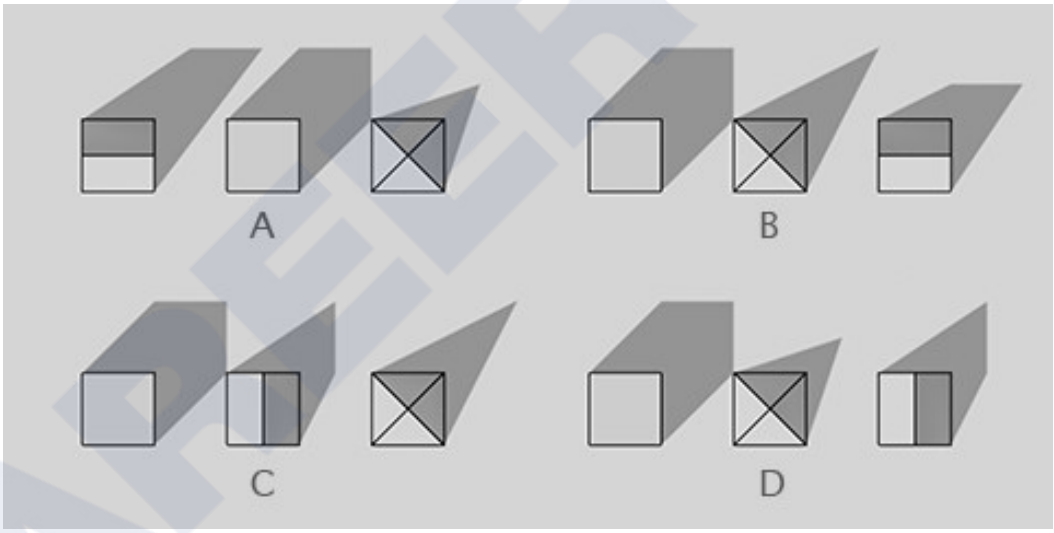


Q.39 An animated character speaking a sentence in English is given below. Which sentence is the character saying?

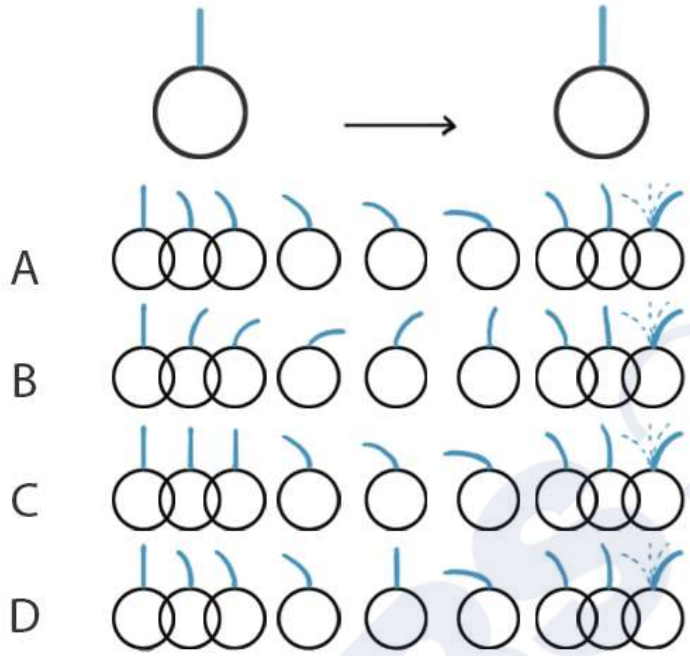
A. I love UCEED!
B. Today is my day!
C. Oh! Hurry up!
D. God, help me!



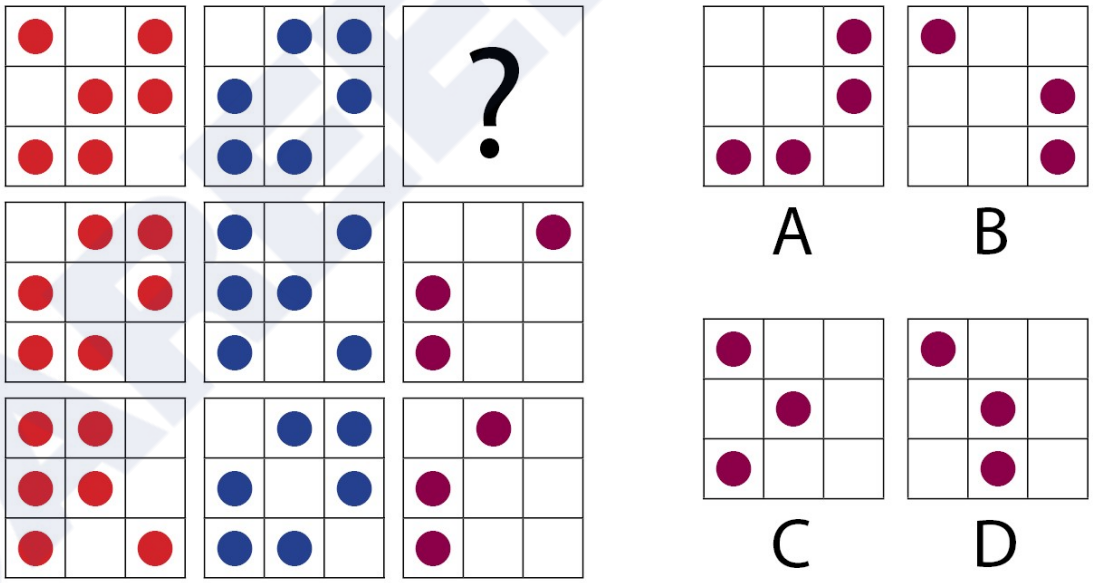
Q.40 A cube, a triangular prism and a square pyramid of equal height are resting on a surface along a straight line, arranged in a random order. If the source of light is fixed and the light rays are parallel, which of the option shows the shadows correctly in top view?



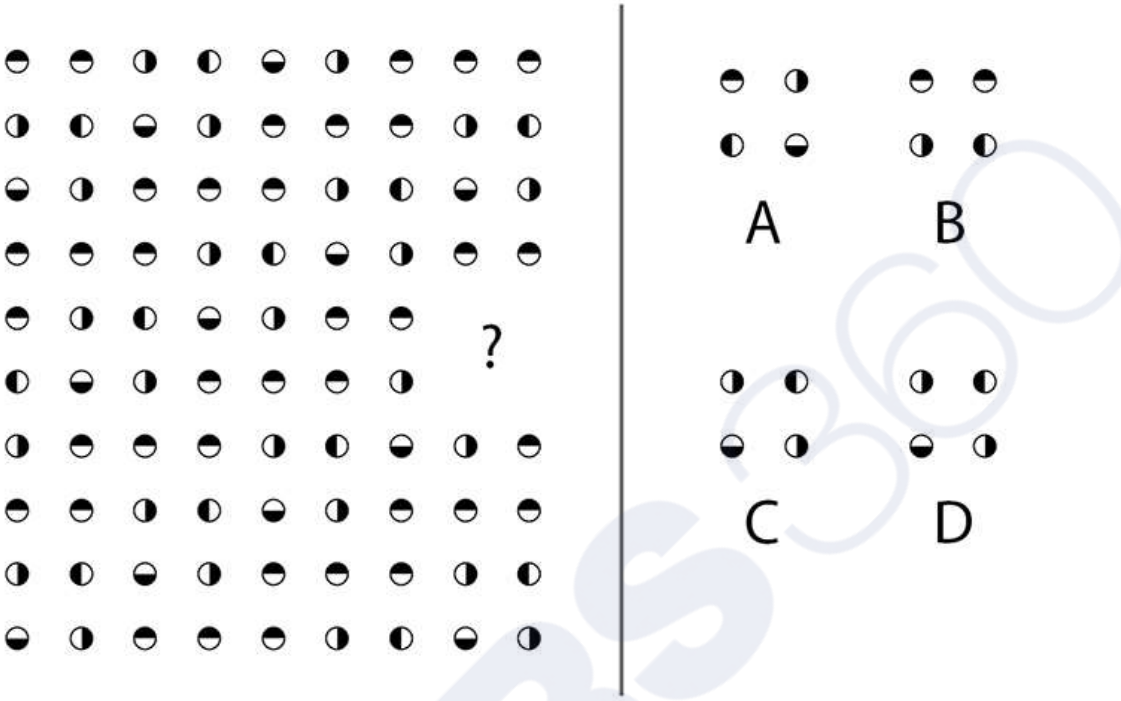
Q.41 A ball with a thin elastic rod moves from left to right as shown below. Which option represents the movement of the rod?



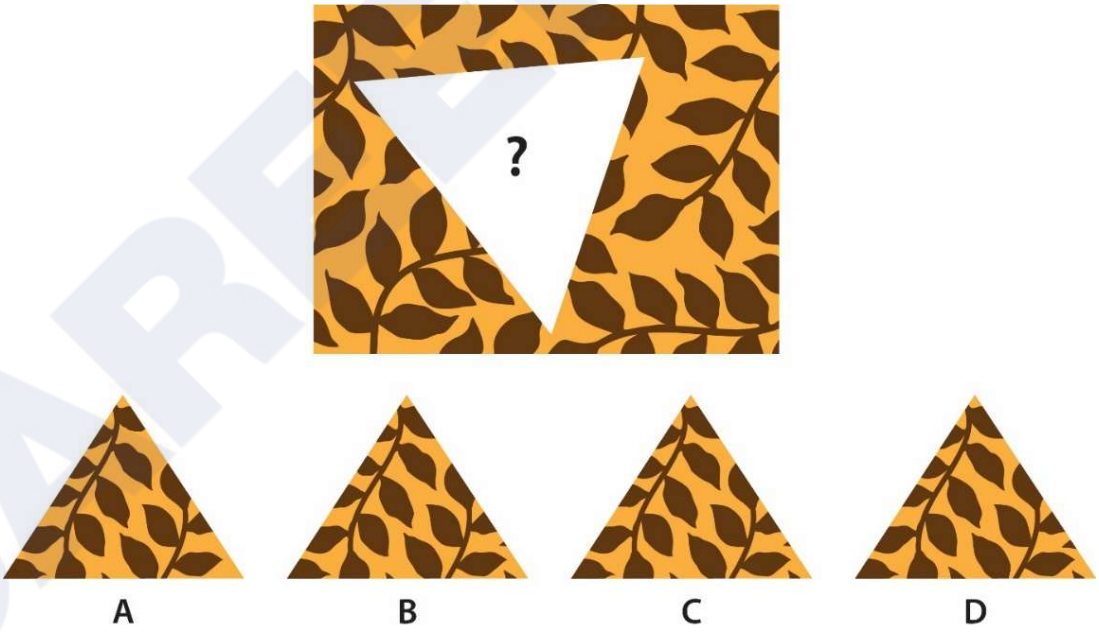
Q.42 Which option will replace the question mark?



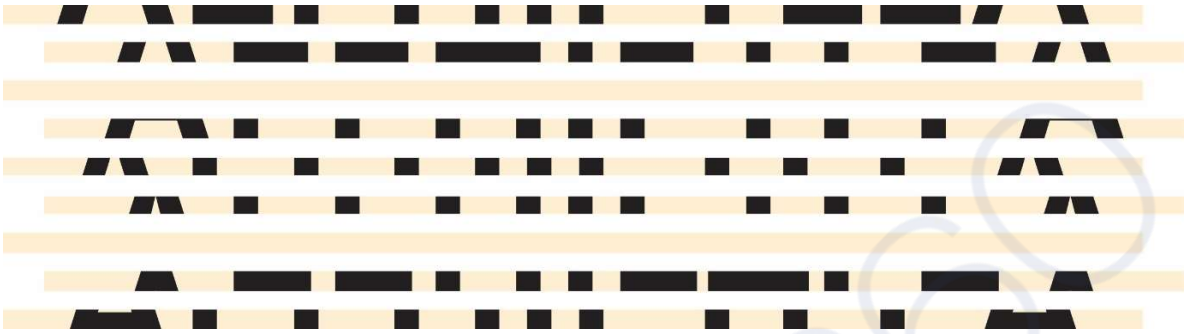
Q.43 Which option will replace the question mark?



Q.44 Which option will replace the question mark?



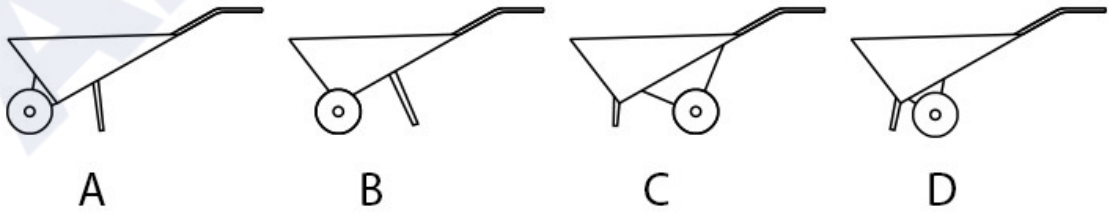
Q.45 A printed code word (in capital letters) has been shredded into strips and the strips are jumbled. Identify the code word.



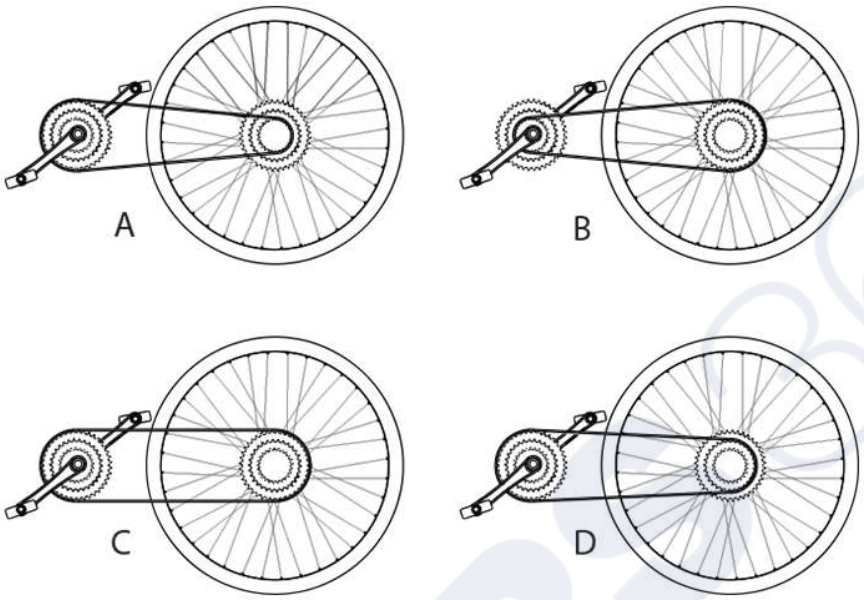
A. AEFITFHLEA
B. AEFHIFTLEA
C. AFEHITFELA
D. AFEIHFTELA

Q.46 Which option will replace the question mark?

Q.47 Construction materials are to be moved using the trolleys in the options. Assume friction is negligible. Which trolley requires the least amount of effort?

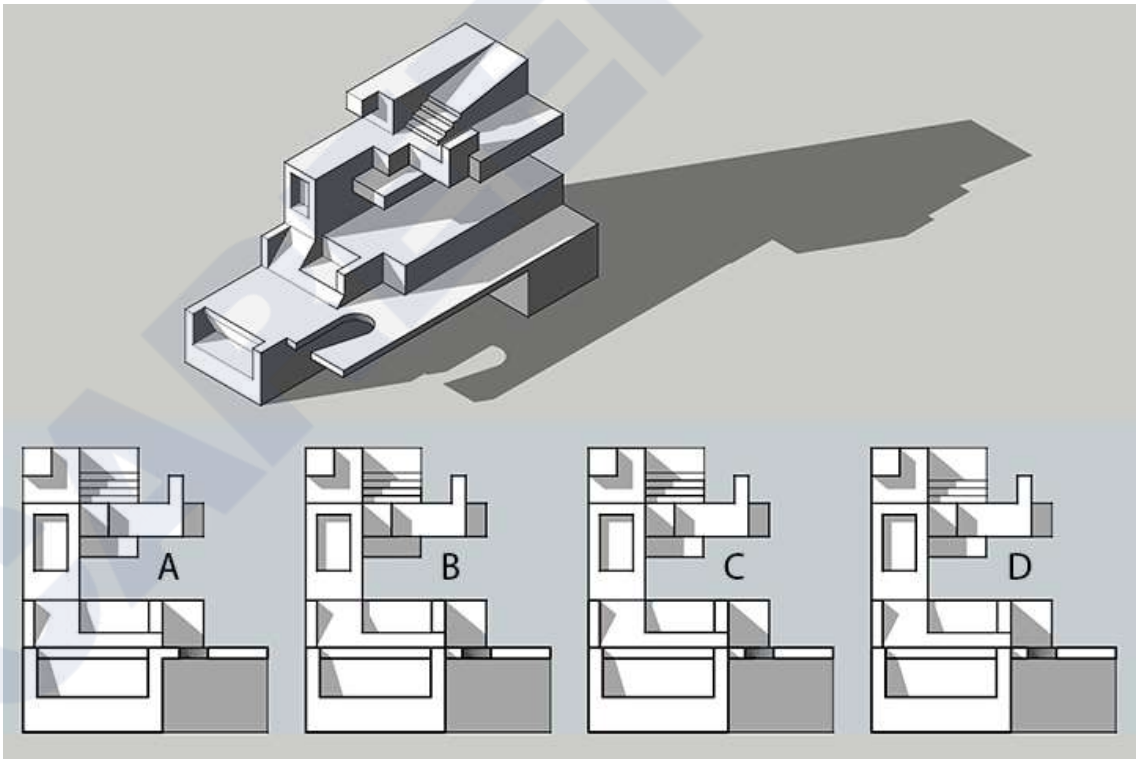


Q.48 A cyclist was peddling a geared cycle on an upward inclined road and decided to stop on the incline. Which option can be used to stop the bicycle on the incline only using force on foot pedals?

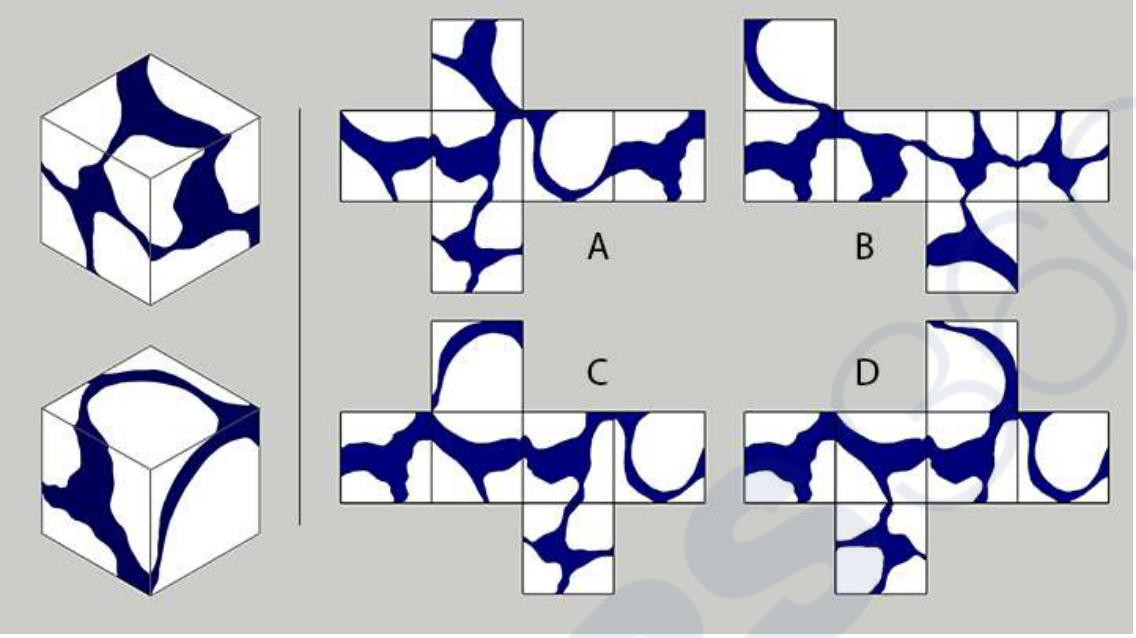


Q.49 Which option represents the solid shown below?

C



Q.50 Two views of a cube are shown on the left. Which option represents the unwrapped cube on the left?

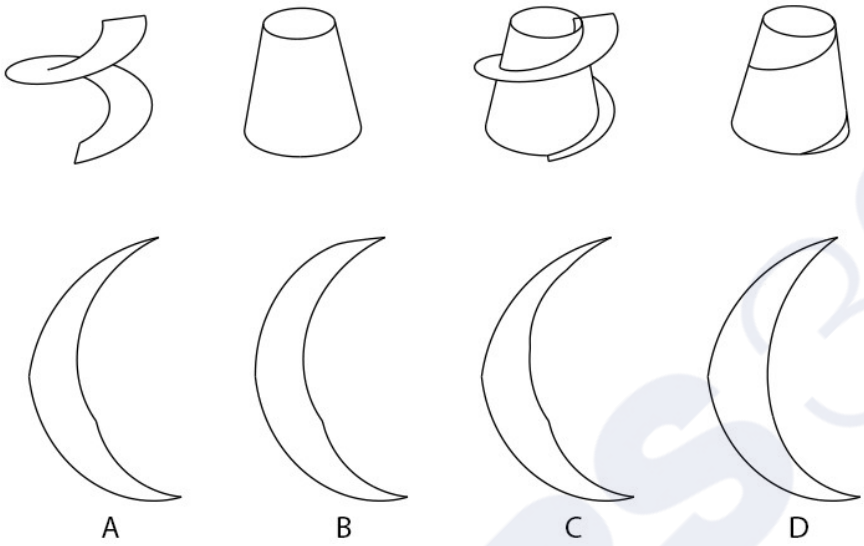


Q.51 During a long-distance sea voyage, without the Captain realising, steering of the ship started malfunctioning in the following manner. When the Captain was trying to turn the ship 60 degrees to the left, ship was turning 30 degrees to the right. When the Captain was trying to turn the ship 90 degrees to the left, ship was turning 90 degrees to the right. When the Captain was trying to turn the ship 45 degrees to the right, ship was turning 30 degrees to the left. When the Captain was trying to turn the ship 90 degrees to the right, ship was turning 45 degrees to the left.

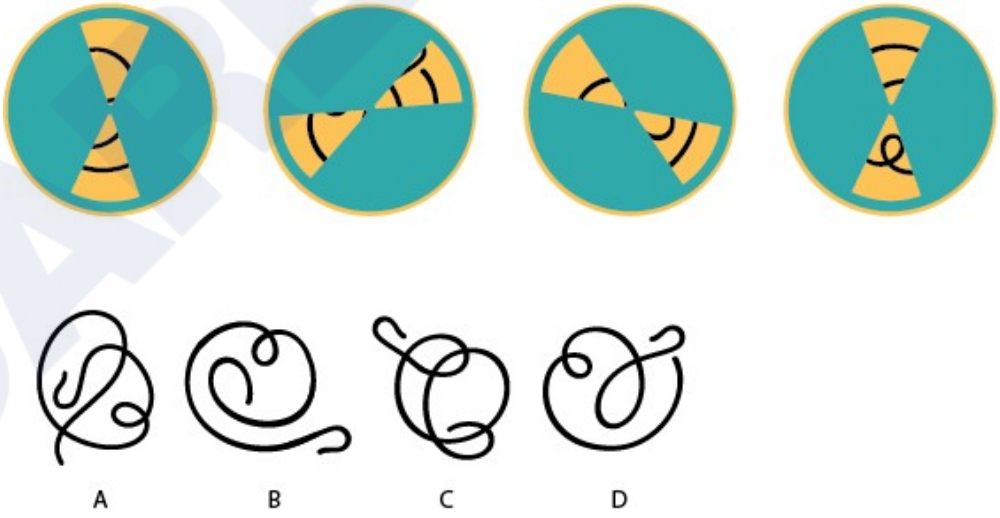
Before the malfunction, ship was going in North-East direction. After the malfunction started, without realising the problem, the Captain tried to turn 90 degrees to the left, then 90 degrees to the right, then 45 degrees to the right and finally 60 degrees to the left. Find the current direction of the ship.

A. NORTH EAST
B. EAST
C. WEST
D. NORTH WEST

Q.52 A hollow paper cone is cut by a spiral blade. The blade, the cone, the position of the cone and blade, and the line along which it gets cut are shown below. The surface of the cone is then unwrapped on a flat surface. Which option shows the unwrapped surface?

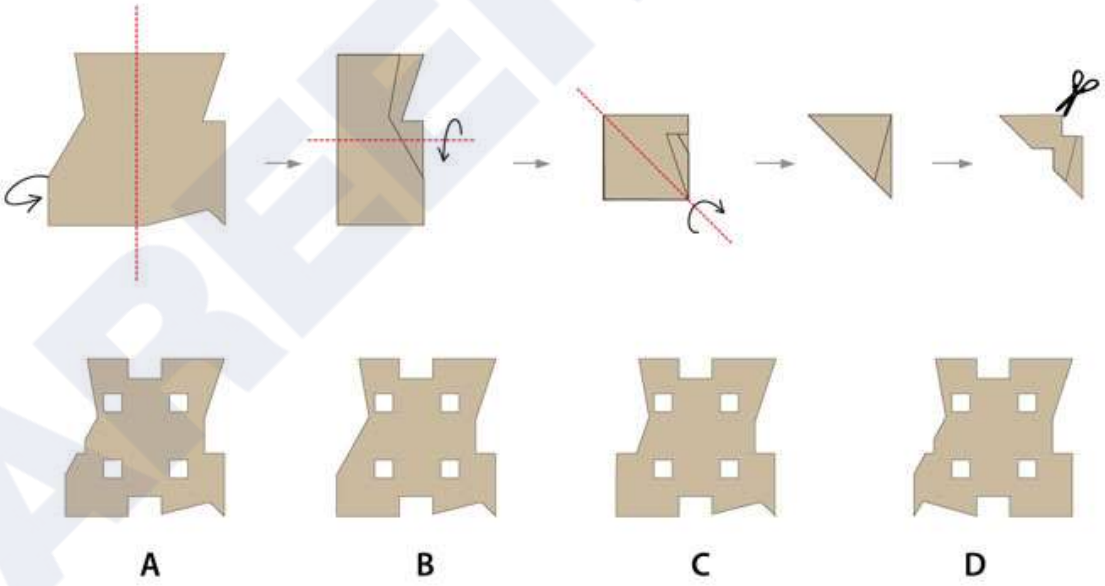


Q.53 Two rotating discs are placed on top of each other that are pivoted at the centre. The disc in front has two cut-outs, and the disc in the back has a line pattern. Both discs can rotate in any direction. Shown below are the four positions at which different parts of the line pattern are visible. Which option represents the line pattern on the back disc?

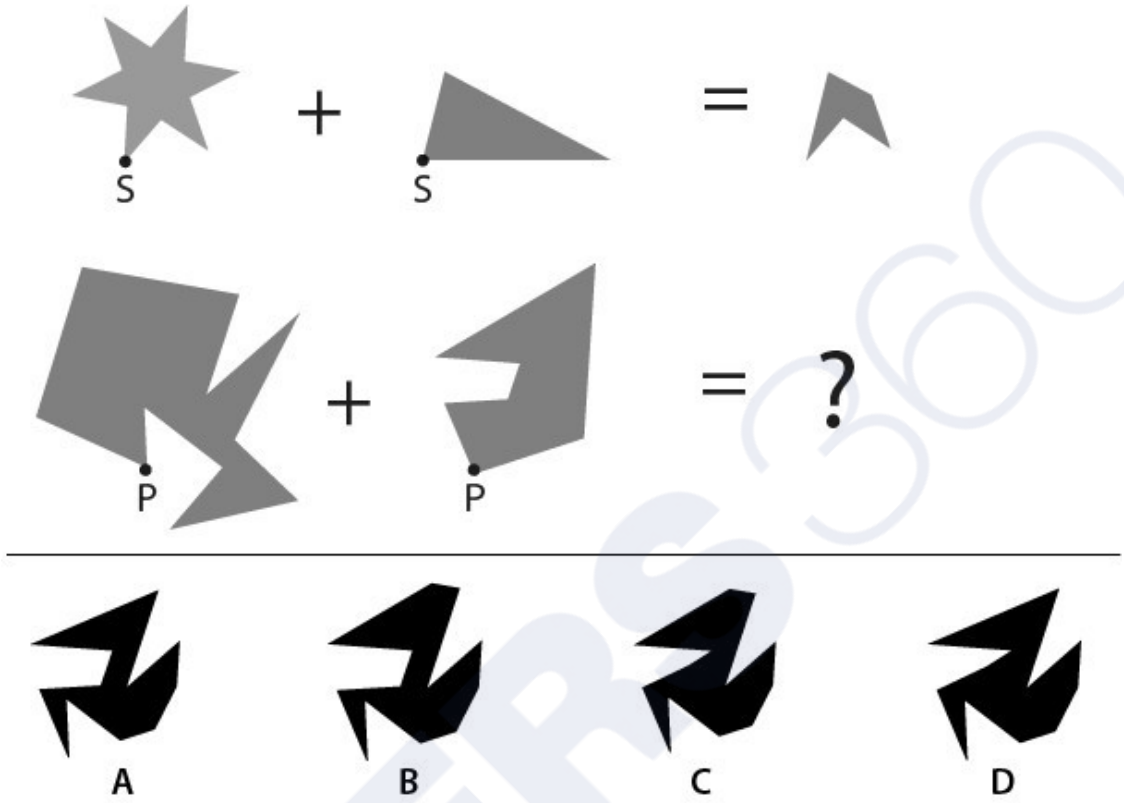


Q.54 Which option has the same visual grammar of the letters on the left?

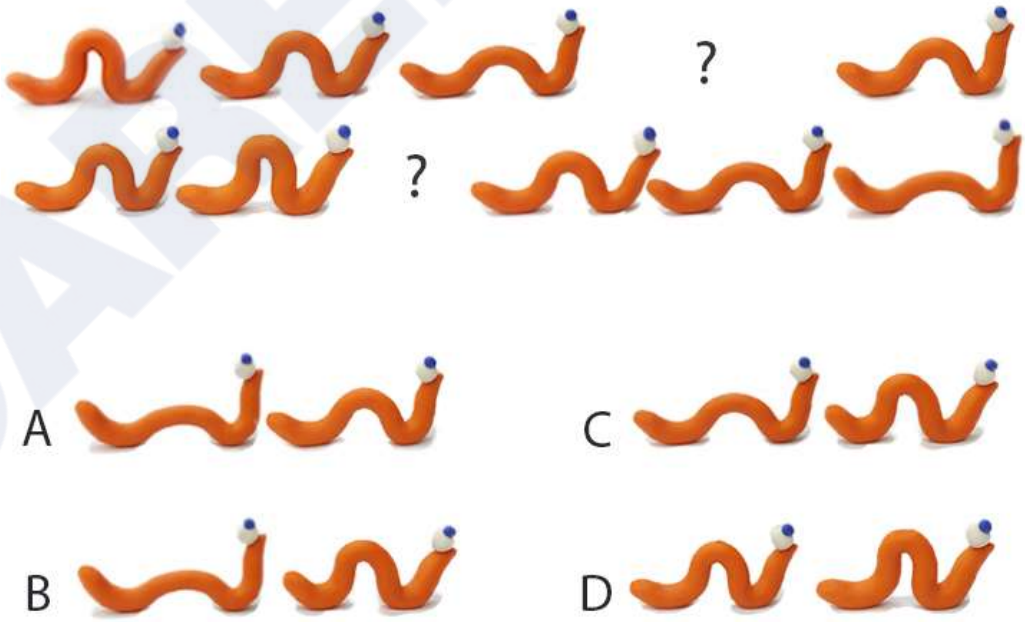
Q.55 An irregular piece of paper is folded and cut as shown below. Which option shows the correct cuts when the paper is unfolded?



Q.56 Which option will replace the question mark?



Q.57 Shown below is the crawling sequence of a worm in eleven frames. Which option represents the missing frames?



PART B (60 minutes – 100 marks)

Q. 1 Drawing [50 Marks]

On a Sunday morning, 5-year-old Geet, her grandmother and father are cleaning their old garage. It is a big garage with large open windows near the ceiling. It has an old bicycle, a football and other objects. The father is cleaning the cobwebs. The grandmother while cleaning, finds her old guitar which she used to play during her college days. She gets excited and starts playing it as Geet starts dancing around. The garage also has a lot of old memories of Geet's sporty grandmother and her studious father. Geet's school friend stands at the door of the garage watching this whole scene.

Draw this scenario from the friend's point of view.

Note:

- Use only pencil
- Do not use colours

Evaluation Criteria:

- Perspective
- Proportion
- Composition
- Observation
- Imagination
- Quality of sketch
- Attention to detail

Q. 2 Design Aptitude [50 Marks]

A six-year old girl is going to school for the first time. She needs to carry a lunch box in her school bag. Her lunch can contain typical Indian food items (both dry as well as liquid food items, such as Roti, Rice, Dosa, Dal, Sambar, etc.). Design a lunch box for her, considering her needs. Sketch your design, and visually explain the features of your design along with clear labels.

Note:

- Use only pencil. Do not use colours.
- Explain your design only through visuals and short labels.
- Do not write separate explanations.

Evaluation Criteria:

- Appropriateness of three-dimensional form and visual graphics
- Provisions for fulfilling functional requirements
- Considerations for product usability by the user
- Attention to detail and explanation of features through visuals only
- Clarity of the sketch and quality of presentation, and uniqueness of design.