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FOR CEED EXAM PREPARATION

CEED 2016 Question Paper · 2

EXAM	YEAR	TYPE	SUBJECT
CEED	2016	Question Paper	2

CEED 2016

Question Paper - 2

Indian Institute of Technology Bombay

Paper Specific Instructions:

1. The examination is of 3 hours duration. The Question paper contains two parts, **PART A** and **PART B**. Duration for **PART A is One Hour** and duration for **PART B is Two Hours**. Part B will start only after Part A ends. Part A cannot be attempted after Part B begins.

2. Questions for Part A and Part B will appear on the computer. Answers to Part A have to be entered in the computer. Part A contains **THREE** sections: **Section I, Section II** and **Section III**. Answers to Part B have to be given in the answer book provided by the invigilator.

3. Part A carries a total of 100 marks. Part B also carries a total of 100 marks.

4. Part A, **Section I** (total 20 marks) contains a total of 10 Numerical Answer Type (NAT) questions. For these NAT type questions, the answer is a number that needs to be entered using the virtual keyboard on the monitor. No choices will be shown for these questions. There is NEGATIVE marking for this section. Each correct answer will be awarded 2 marks and each wrong answer will be awarded –0.6 marks. Questions not attempted will result in zero mark.

5. Part A, **Section II** (total 20 marks) contains a total of 10 Multiple Select Questions (MSQ). Each MSQ type question has **one or more correct answer(s)** out of the four given choices. The candidate gets 2 marks **only if** she/he selects all the correct answers. There is NO NEGATIVE or PARTIAL marking for this section.

6. Part A, **Section III** (total 60 marks) contains a total of 30 Multiple Choice Questions (MCQ). Each MCQ type question has four choices out of which **only one** is the correct answer. There is NEGATIVE marking for this section. Each correct answer will be awarded 2 marks and each wrong answer will be awarded –0.6 marks. Questions not attempted will result in zero mark.

7. Part B contains 7 questions. Questions 1, 2 and 3 are **Mandatory** and answer all of them. Questions 4, 5, 6 and 7 are **Optional** and answer only one of them.

8. Charts, graph sheets, tables, calculator, cellular phone and other electronic gadgets are NOT allowed in the examination hall.

9. A scribble pad will be provided for rough work. This has to be returned to the invigilator at the end of the exam.

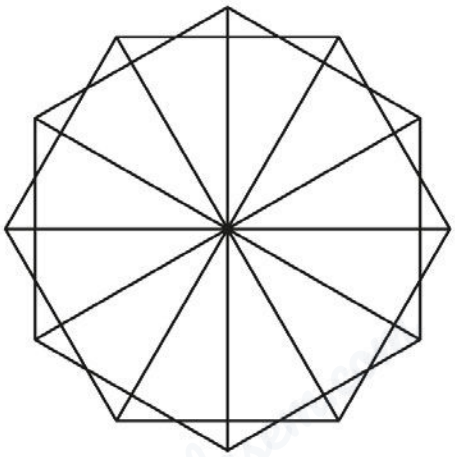
10. Specific instructions to Part B are given in the answer book.

Part A: Section I. NAT

Q.1 Shown below are ampersands (sign for 'and') in several fonts. Count the number of distinct fonts used.

&	&	&	&	&	&	&	&	&	&	&	&
&	&	&	&	&	&	&	&	&	&	&	&

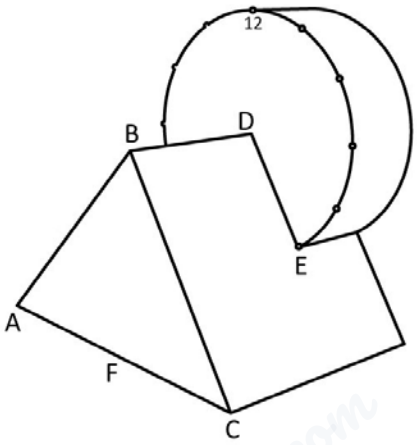
Q.2 Count the number of triangles in the given figure.



Q.3 Given below is the intersection of a triangular prism with a cylinder. The sides of the isosceles triangle ABC are: AB=BC=5 cm, AC= 6cm. The diameter of the cylinder is 5 cm, width is 2 cm and the total length of the prism is 5.4cm.

Assume the cylinder face to be a dial of a clock, with D at its center. Imagine a lizard starts moving from F which is midpoint of AC, and travels along the solid surface to catch a fly sitting on the periphery of the dial at 2 O'clock position.

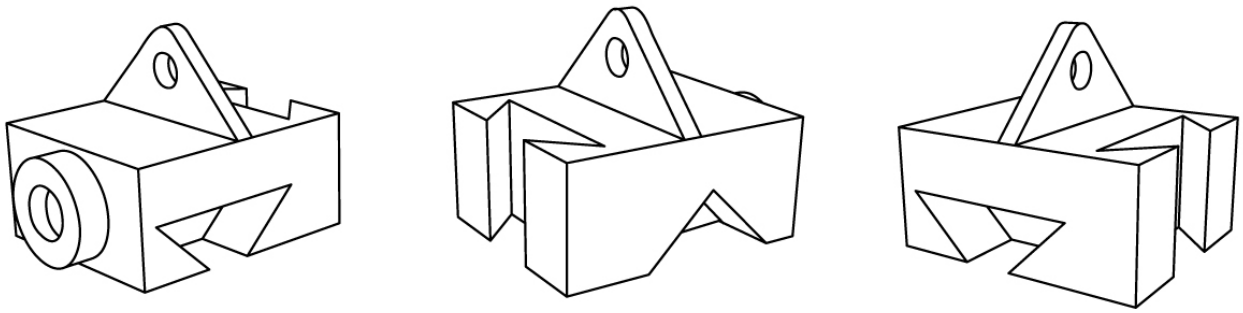
The lizard takes a straight paths FB, BD, DE and proceeds to target along the periphery of the dial. What would be the full length traversed by the lizard?



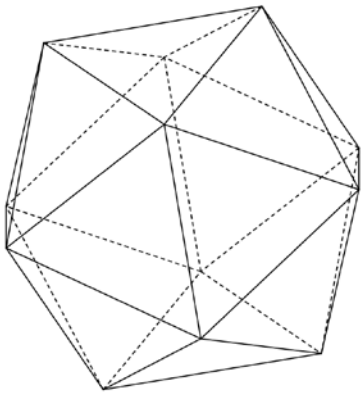
Q.4 Enumerate the number of spelling mistakes in the following paragraph:

> Bamboo has a natural habittat in most rejions of our country. Adepted to a wide vareity of soil, climate and interdipendence of palnt life, there are hundreds of identifed species that grow in our country meeting variety of user needs. As a general featiure, the root system of bamboo and its closely placed stumps create numerous little bariers and hols the top soil firmly, arsesting erosion and flash floods.

Q.5 Shown below are three perspective views of the same solid object. Count the total number of surfaces in the object. Assume that the hidden surfaces are flat.



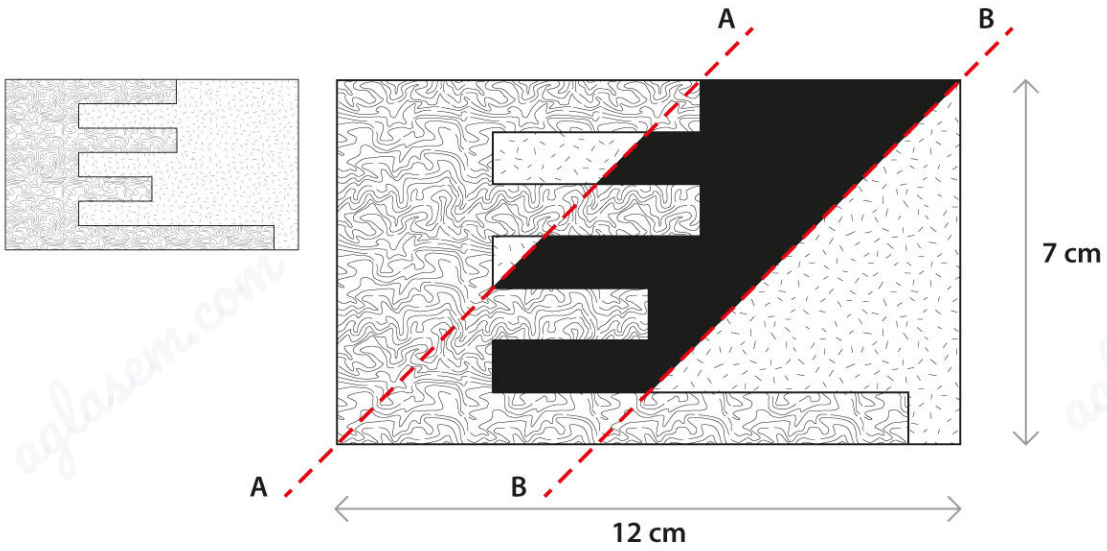
Q.6 The 3D solid given below has edges of equal length of 16 cm. A rectangular hole of dimensions 4x3 cm and depth 2 cm is made in the centre of each face. Calculate the total surface area of the resulting solid in square cm.



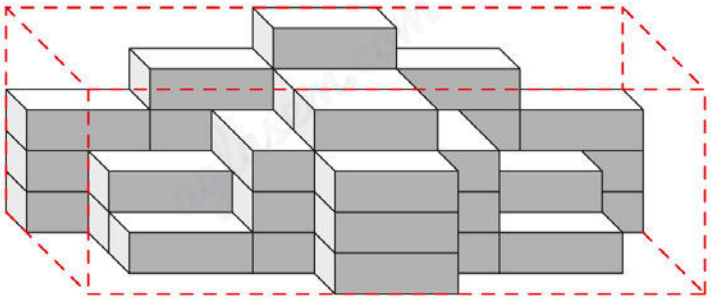
Q.7 Given below are seven pieces of a puzzle. What is the four digit number formed after the correct arrangement?



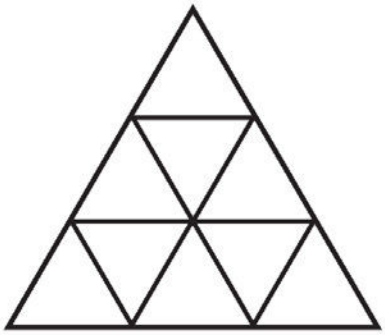
Q.8 Shown below on the left are two wooden pieces joined together. The joint wooden block is cut at two places AA and BB at 45 degree angles respectively as shown in the enlarged figure on the right. Calculate the area shaded in black. Give your answer in square cm.



Q.9 Shown below is a stack of identical bricks arranged without empty spaces between them. How many additional bricks are required to complete the stack into a solid rectangular block?



Q.10 A platonic solid has all faces congruent. Given below is one face of a platonic solid. Faces of this solid meet to create six vertices and twelve edges. Visualizing this solid, count the total number of triangles visible on all the faces.



Part A: Section II MSQ

Q.11 A minimum of five and a maximum of seven fonts are to be selected for a font collection. They are to be selected from a set of nine fonts. This set includes two bold serif fonts, three bold san-serif fonts, one regular serif font, and three regular san-serif fonts. The fonts are to be selected according to the following conditions:

Exactly two serif fonts must be selected.
A minimum of three and a maximum of four bold fonts must be selected.
If the regular serif font is selected, at least two regular san-serif fonts must be selected.
Either the regular serif font or at least two bold san-serif fonts must be selected.

If all the above conditions are met, which of the following could be used to create the collection?

A. Exactly three regular san-serif fonts are selected.
B. Exactly one regular font is selected.
C. Exactly three bold san-serif fonts are selected.
D. Exactly five san-serif fonts are selected.

Q.12 From the list given below, identify the term(s) used in animation.

I. Follow-through
II. Exaggeration
III. Last in First out
IV. Blocking
V. Breakdown
VI. Straight Ahead

A. I, II, III and VI
B. I, II, III
C. II, V, VI
D. I, II, IV, V, VI

Q.13 Read the following passage carefully and answer the question that follows:

In the case of the Adivasi, the future is the enemy of the past. The forces of modernization are rapidly wiping out Adivasi cultural tradition. The economic marginalization of the Adivasis is seen as a result of something inherent in their traditions and social structures, and not a consequence of historical and legal interventions issuing out of colonialism. The ignorance about social structures, world-views and cultural practices of the Adivasis is quite pervasive. We have not made even the slightest progress in the direction of understanding Adivasi art and literature in India. Most of our literary critics and art historians remain innocent about the existence of Adivasi art and literature. However, the art and literature of Adivasi communities in India have their own peculiar identity. When we look at them as strangers, our response to them is trapped in quasi-anthropological parameters. Lacking the patience and inclination to understand them on their own terms, we hurriedly conclude that these are art forms which have merely fallen out from mainstream Indian society and have remained frozen in some remote historical time.

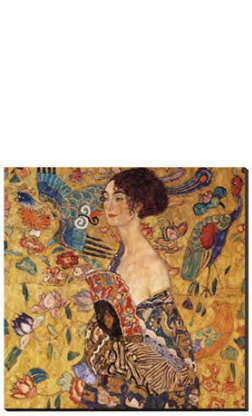
Which of these statement(s) is/are FALSE?

A. The author believes that modernization is responsible for the economic growth of the Adivasis.
B. The author is of the opinion that most of us are well versed with Adivasi life and beliefs.
C. According to the author the Adivasi tradition of art and literature has remained unchanged over time.
D. The author suggests that we can learn about Adivasi life by going slow and understanding them from their own perspective.

Q.14 Which of the following statement(s) is/are TRUE?

A. 'Penny Farthing' is a type of bicycle.
B. Papier Mache is a type of machine used for making paper.
C. Laminated Wood can be bent and used in furniture.
D. Surgical gloves are made primarily using the extracts of Eucalyptus tree.

Q.15 Which of the following painting(s) is/are by Gustav Klimt?


A


B


C

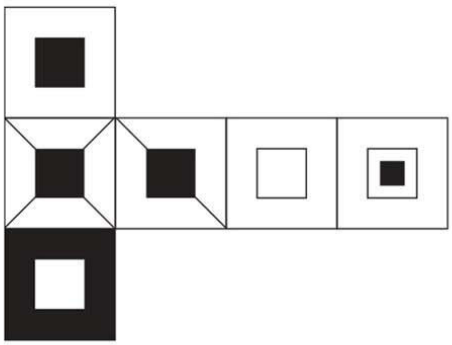

D

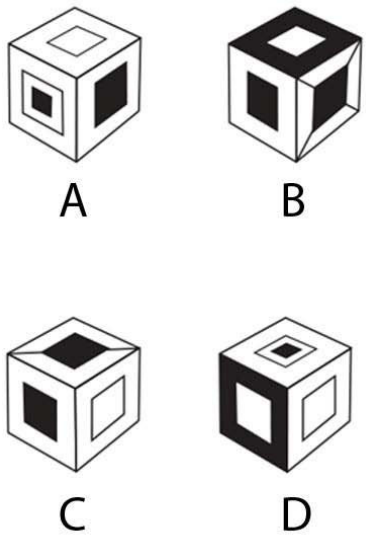
Q.16 The image shown on the left was sent to the printer with the addition of certain marks as shown on the right. Which of the term(s) is/are used to refer to these marks?



A. Crop Marks
B. Trim Marks
C. Folding Marks
D. Cutting Marks

Q.17 Shown below is the unfolded surface of a cube. Which of the option(s) depict the folded cube?





Q.18 Which of the following company/companies manufacture photographic cameras?

A. Hasselblad
B. Hoefler
C. Leica
D. Lamy

Q.19 In the context of Metal Casting process which of the following statement(s) is/are TRUE?

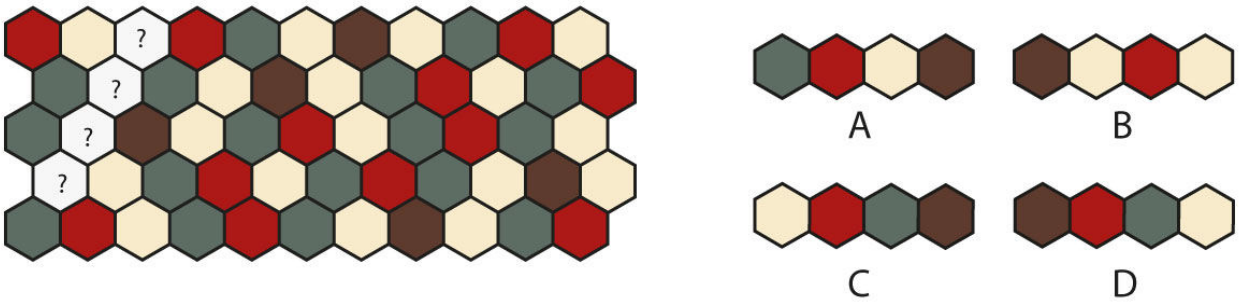
A. Metal is heated to red hot state and cut into desired blocks and forms.
B. Molten liquid is poured into moulds.
C. Runners and risers are used.
D. Patterns and Cores are used.

Q.20 Which of the following statement(s) is/are TRUE?

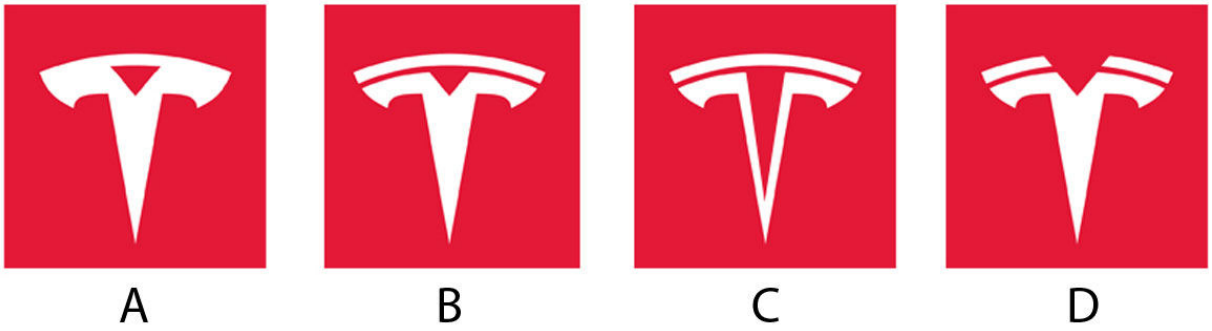
A. Willow, Sandal, Red-Sander and Rose are names of types of wood.
B. HDPE, PVC, MDF and SAN are types of Plastic.
C. Blanking, Stamping, Deep drawing and Embossing are related to sheet metal processing.
D. Glazing, Coiling and Pinching are types of ceramic processes.

Part A: Section III MCQ

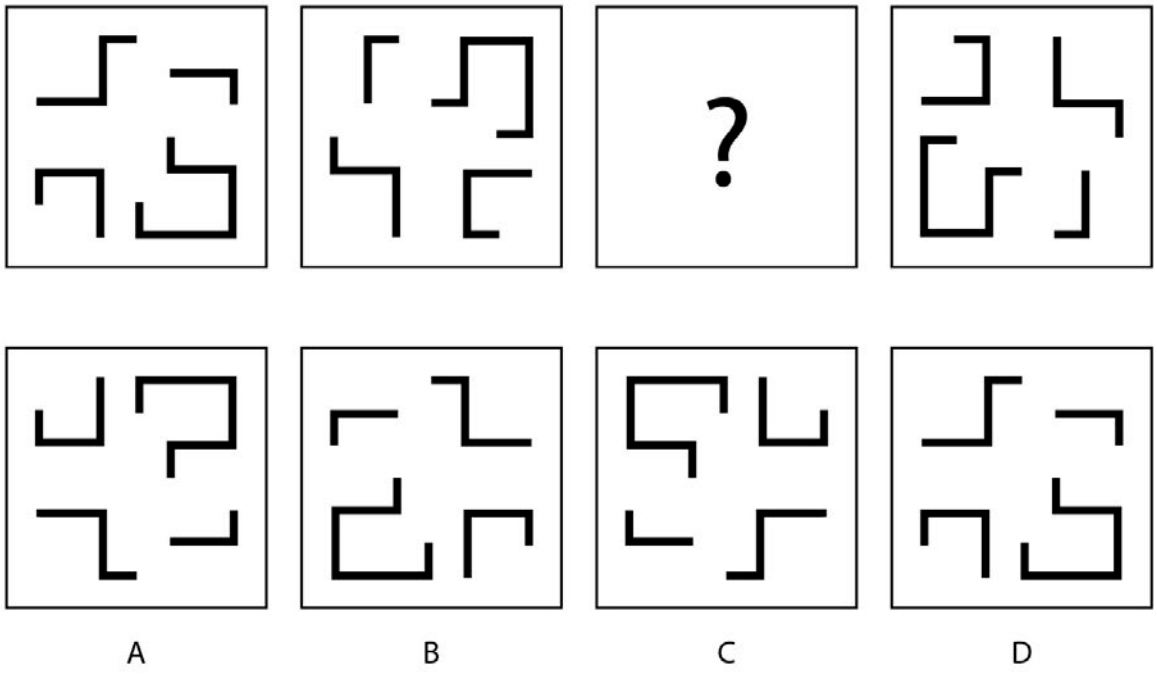
Q.21 The pattern on the left is missing a piece. Which piece on the right would complete the pattern?



Q.22 Which of the given options is the logo of the electric car company Tesla?



Q.23 Identify the third step in the series of transformation shown below:



Q.24 Shown below is a monument. Identify which architectural style it belongs to.



A. Kalinga architecture
B. Chola architecture
C. Chalukya architecture
D. Maru-Gurjara architecture

Q.25 The following text is from a single paragraph but the lines have got disarranged. Identify the order in which they should be arranged, for the paragraph to make complete sense.

(i) All art and creativity spring from the conflict between the two, all spirituality wells up from that source. The search for that which transcends the material world then takes on a variety of forms.

(ii) Therefore, a certain degree of control over the human body, putting it through some tradition-bound regime of spiritual exercise, becomes an essential part of the realisation of that longing.

(iii) The dichotomy between the human body, made of perishable material, and human consciousness, which is apparently free to transcend the limits of space and time, has been one of the central forces that create cultural dynamics.

(iv) Sometimes it turns to the symbols of worship, at other times to devotion to human messengers of the eternal. But while symbols of eternity, human or otherwise, become the medium for spiritual yearning, the yearning itself is firmly located in the human body.

A. i, iii, ii, iv
B. iii, i, iv, ii
C. iv, ii, iii, i
D. ii, iv, i, iii

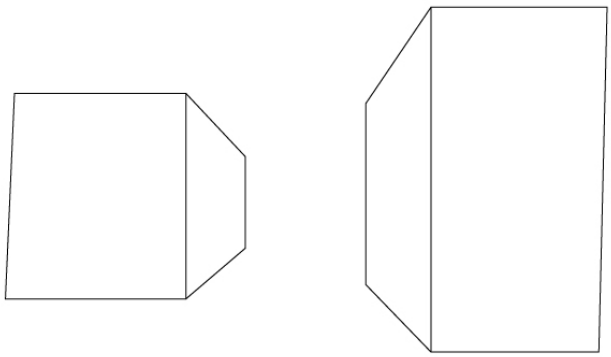
Q.26 Which of these is a cartoon character by Osamu Tezuka?

A. Astro Boy
B. Totoro
C. Doraemon
D. Naruto

Q.27 Given below are names of famous philosophers from the Indian subcontinent. Choose the option which depicts the correct order of their appearance starting with the earliest.

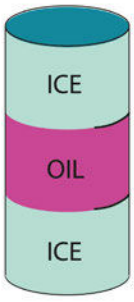
A. Chanakya, Nagarjuna, Bhartrhari, Adishankara
B. Nagarjuna, Bhartrhari, Chanakya, Adishankara
C. Adishankara, Chanakya, Bhartrhari, Nagarjuna
D. Chanakya, Bhartrhari, Adishankara, Nagarjuna

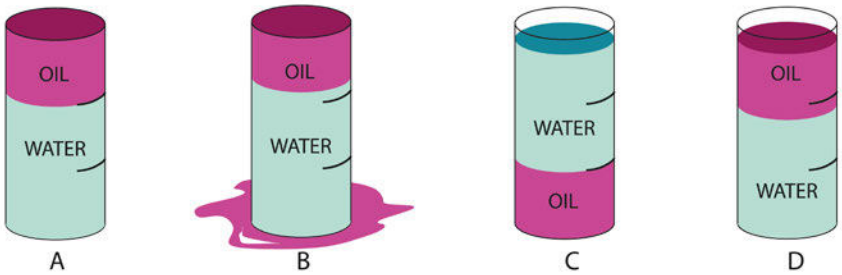
Q.28 The following orthographic view has an arrangement of two objects. It shows:



A. One point perspective.
B. Two point perspective.
C. Three point perspective.
D. No perspective.

Q.29 A cylindrical container with layers of ice and frozen oil are shown below. After the contents of the container melt and settle, which of the options given below will be the correct result?





Q.30 Identify the correct sequence of colours appearing in the Google logo starting from left to right.



A. Blue, Yellow, Red , Green, Blue and Red
B. Blue, Red, Green, Blue, Yellow and Red
C. Blue, Red, Yellow, Blue, Green and Red
D. Blue, Yellow, Red , Blue, Green, and Red

Q.31 Read the passage given below and answer the question that follows:

Not to become a king, nor to gain any other rewards here, or in the next birth or after death in paradise, shall they be inspired to challenge the oppressors, exploiters, and tyrants, but to cast off the yoke of serfdom from the neck of humanity and to establish liberty and peace shall they tread this to their individual selves perilous and to their noble selves the only glorious imaginable path. Is the pride in their noble cause to be — misinterpreted as vanity? Who dares to utter such an abominable epithet? To him, I say either he is a fool or a knave. Let us forgive him for he can not realize the depth, the emotion, the sentiment and the noble feelings that surge in that heart. His heart is dead as a mere lump of flesh, his eyes are weak, the evils of other interests having been cast over them. Self-reliance is always liable to be interpreted as vanity. It is sad and miserable but there is no help.

This passage is from an essay written by Bhagat Singh. What is the title of the essay?

A. Why I am an Atheist?
B. Why I am a Revolutionary?
C. My Revolutionary Struggle
D. What Is to Be Done?

Q.32 Select the most appropriate option which matches the Plastic Process with the products.

P. Blow Moulding	i. Tiffin Box
Q. Injection Moulding	ii. Boat
R. Rotomoulding	iii. Jerry Can
S. FRP	iv. Water Tank

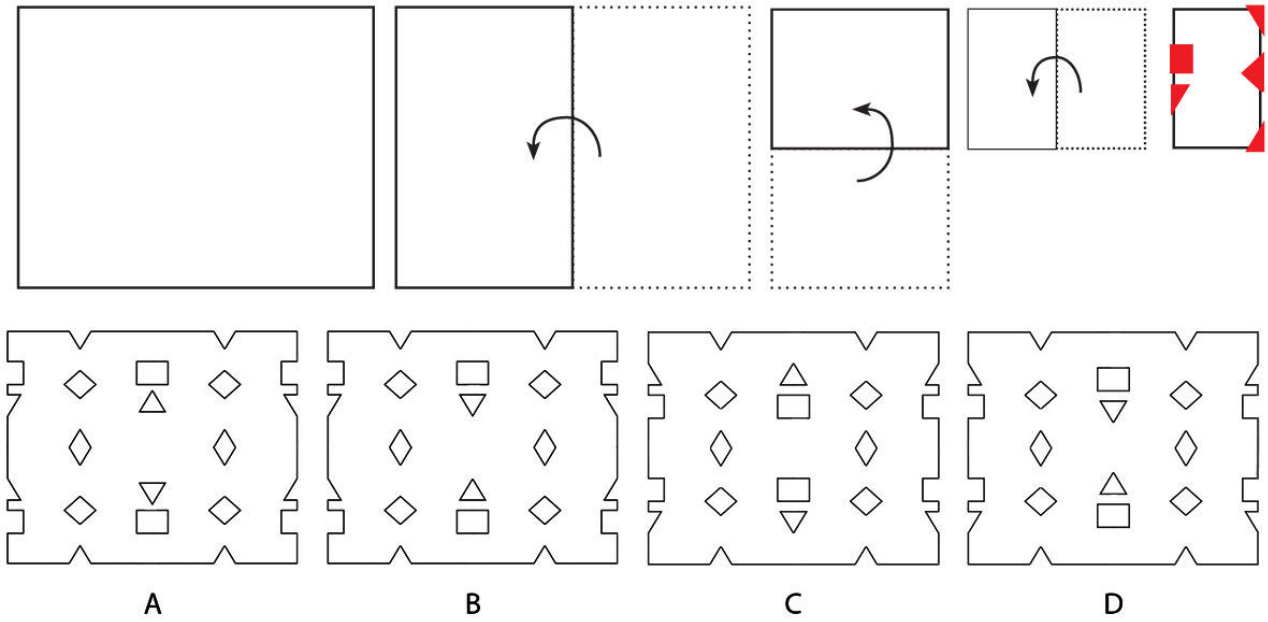
A. P-i, Q-ii, R-iv, S-iii
B. P-iii, Q-i, R-iv, S-ii
C. P-i, Q-ii, R-iv, S-ii
D. P-iii, Q-i, R-ii, S-iv

Q.33 The 'I Love New York' logo is designed by?

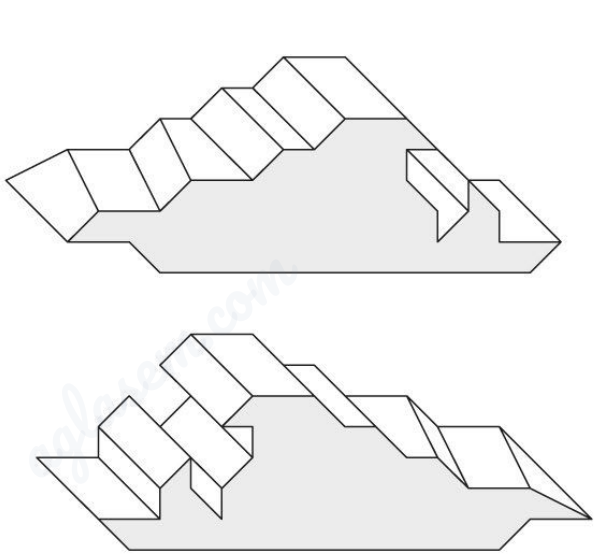


A. Milton Glaser
B. Paul Rand
C. Saul Bass
D. Stefan Sagmeister

Q.34 A sheet of paper is folded in the sequence given below. After folding, cuts are made as per the shapes marked in red as shown on the right. Identify the resulting figure when the paper is unfolded fully.



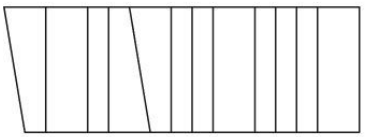
Q.35 Shown below on left are two orthographic views of an object. Identify the correct top view from the given choices.



A



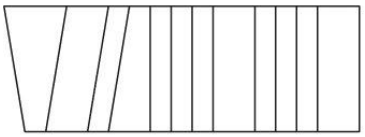
B



C



D



Q.36 Each screen angle in CMYK Printing is positioned at a certain angle to avoid dot clash and consequent moiré effect. What is the screen angle used for the colour K?

A. 105 degrees
B. 90 degrees
C. 45 degrees
D. 75 degrees

Q.37 Given below is a word written in a specific font. From the options, choose the letter which belongs to the same font family.

Magnanimous



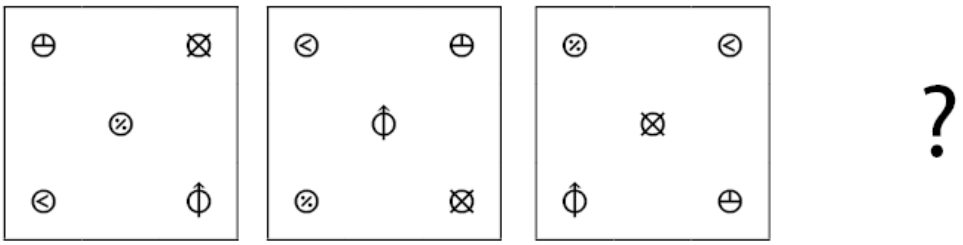
A B C D

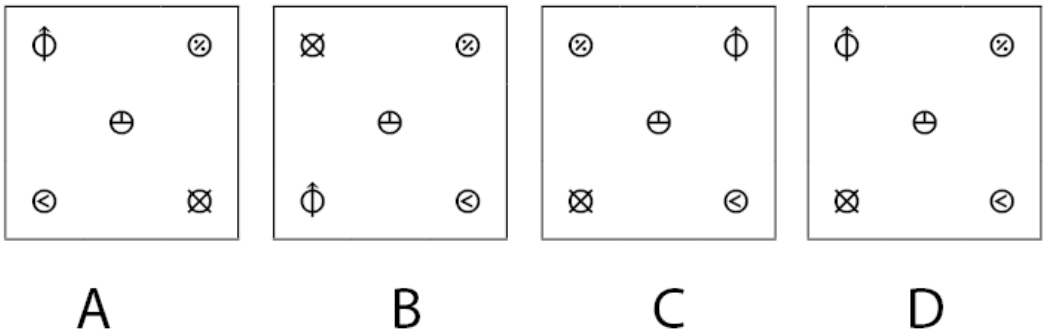
Q.38 In the passage below, identify the four missing words. The boxes below contain possible words for each blank. Choose the option which contains the correct missing words.

Film, to begin with, was a means of reproduction. It was ...(i)... and closer to photography, since it 'captured', on ...(ii)..., scenes involving movement. But as film became more ...(iii)..., it discovered that it could tell a story. It was this 'narrativisation' of film that gave to it the status of an art, and it was in grappling with ...(iv)... of narration that it evolved specific signifying procedures.

A	B	C	D
i. Physical	i. Mechanical	i. Rich	i. Imaginative
ii. Screen	ii. Celluloid	ii. Screen	ii. Location
iii. Known	iii. Self-conscious	iii. Serious	iii. Cautious
iv. Science	iv. Problems	iv. Solutions	iv. Ideas

Q.39 Identify the fourth figure in the sequence.





Q.40 If you stare at a pure yellow colour patch for more than 20 seconds which of the following would be created in the afterimage?

A. Violet
B. Brown
C. Red
D. Green

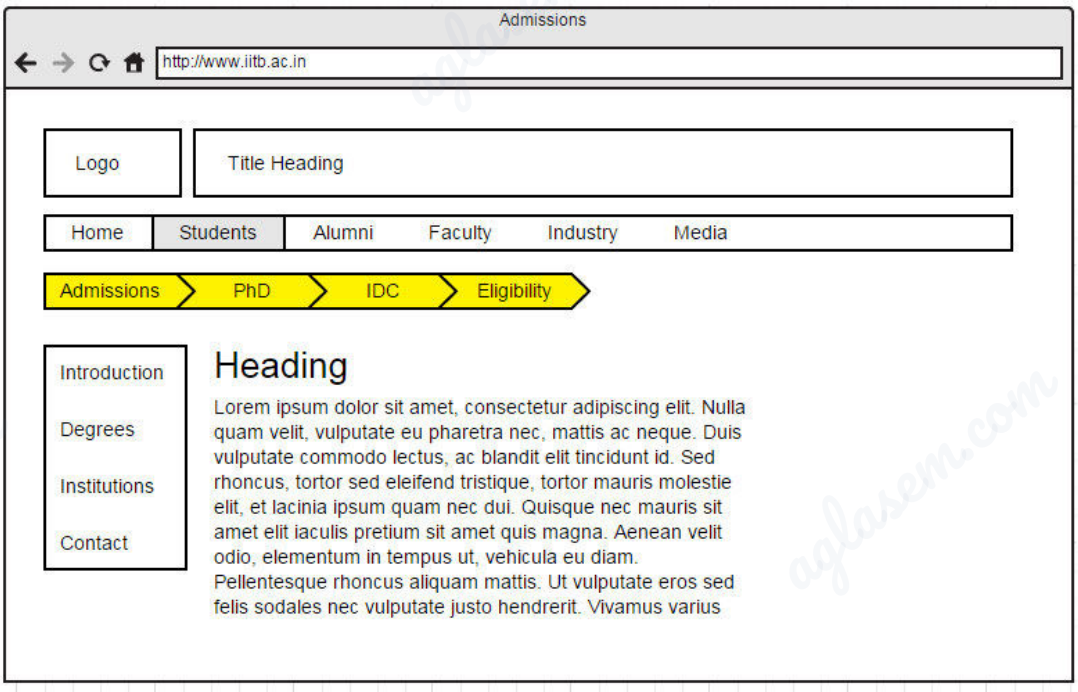
Q.41 Which of the following statement is FALSE with respect to automobiles?

A. Monocoque technology is used in building car body.
B. Metal reinforcements are used in manufacture of car tyres.
C. Spark plugs are used for ignition in 4-stroke car engines using diesel.
D. Carbon Monoxide is emitted from car engines.

Q.42 A bus starts its journey, goes towards north for 19 km, turns right and travels 7 km. Then it turns right again, travels 5 km, turns left to go another 13 km, after which it turns towards right at an angle of 45 degrees. If all the earlier turns were taken at right angles, what will be the final direction of the bus?

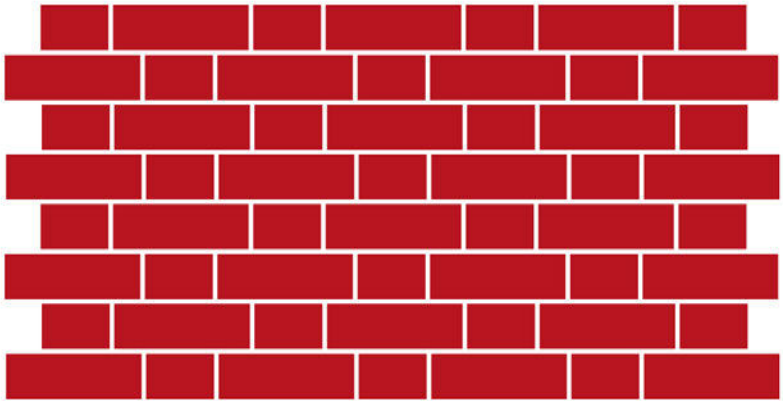
A. South East
B. North East
C. North West
D. South West

Q.43 Shown below is a wireframe of a website. What is the UI element highlighted in yellow called?



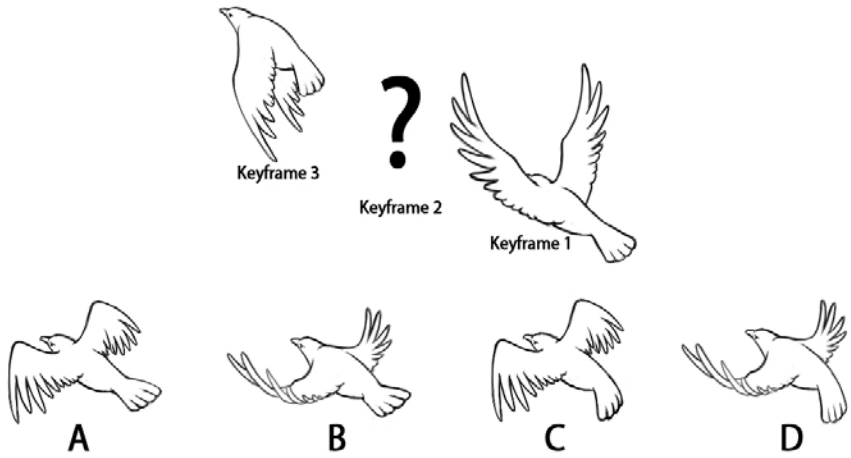
A. Global Navigation
B. Site Map
C. Breadcrumbs
D. Steps-to-Completion

Q.44 Shown below is a conventional brick bonding used in building construction. Identify the correct name of the bonding.

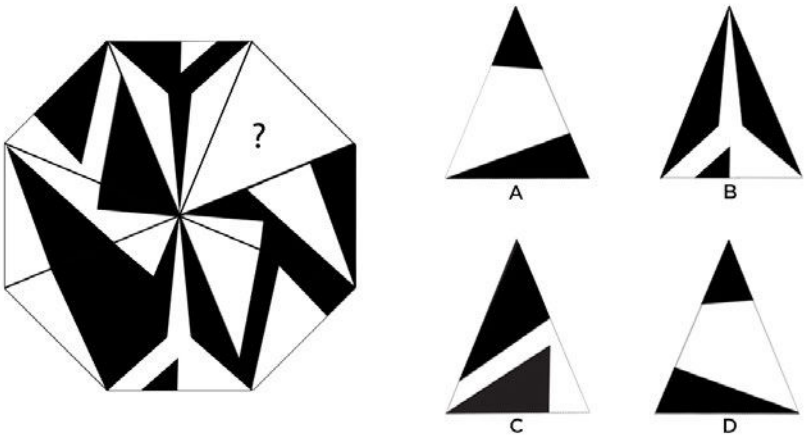


A. Stretcher Bond
B. Header Bond
C. English Bond
D. Flemish Bond

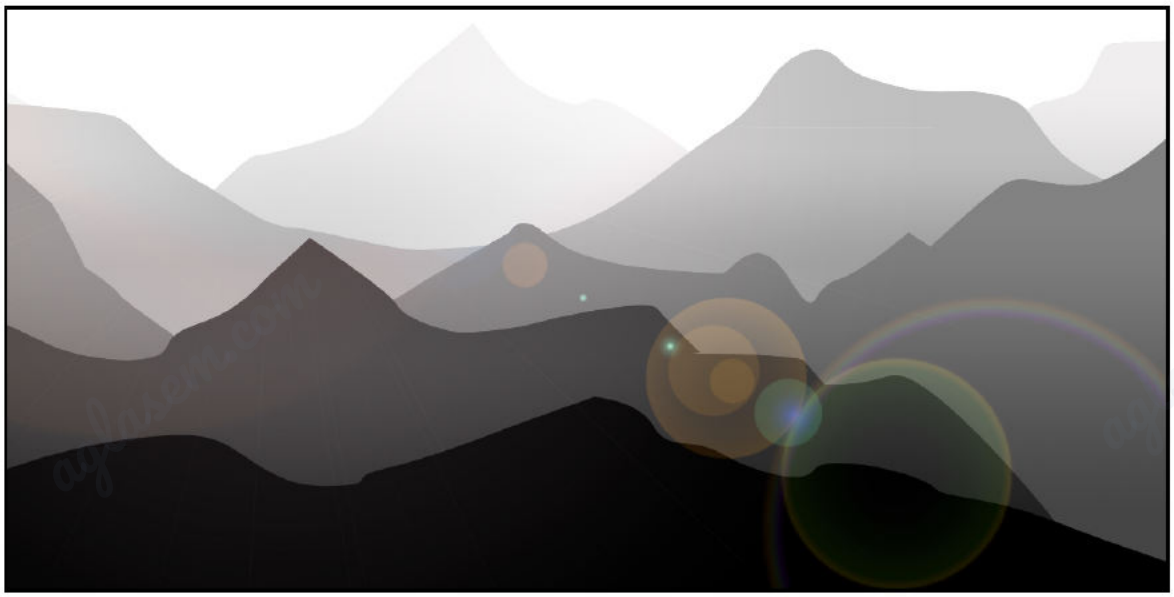
Q.45 Given below are two keyframes of a bird flying. Which of the options provided is the correct choice for keyframe 2?



Q.46 Find the missing triangle.

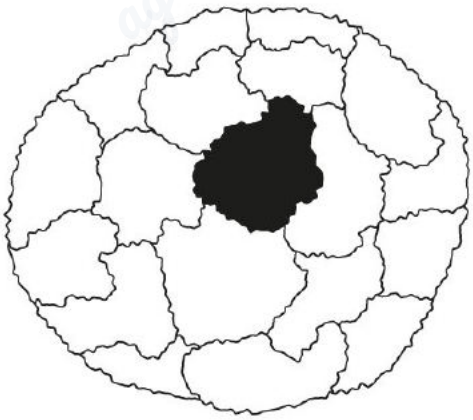


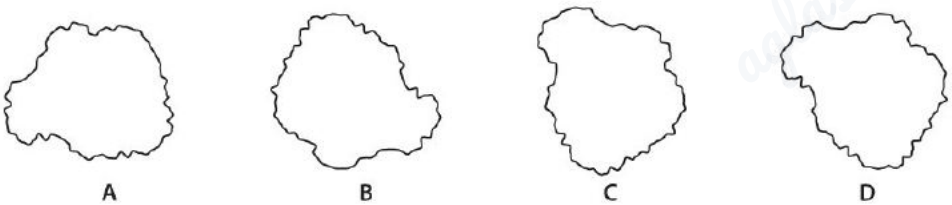
Q.47 The image shown demonstrates which type of perspective?



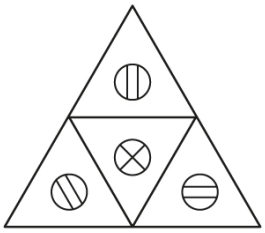
A. Optical perspective
B. Atmospheric perspective
C. Terrain perspective
D. Saturation perspective

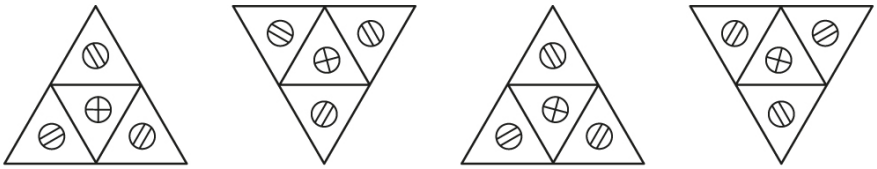
Q.48 Identify the missing piece of the cauliflower shown below.





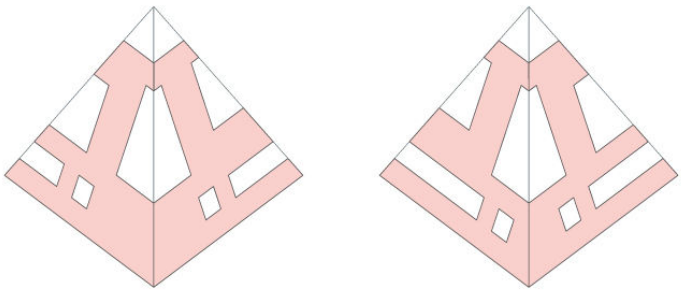
Q.49 The triangular tile with symbols is transformed through the following sequence: Rotated 60 degree clockwise, flipped along the horizontal axis and then flipped along the vertical axis. Identify the orientation of the resultant tile.

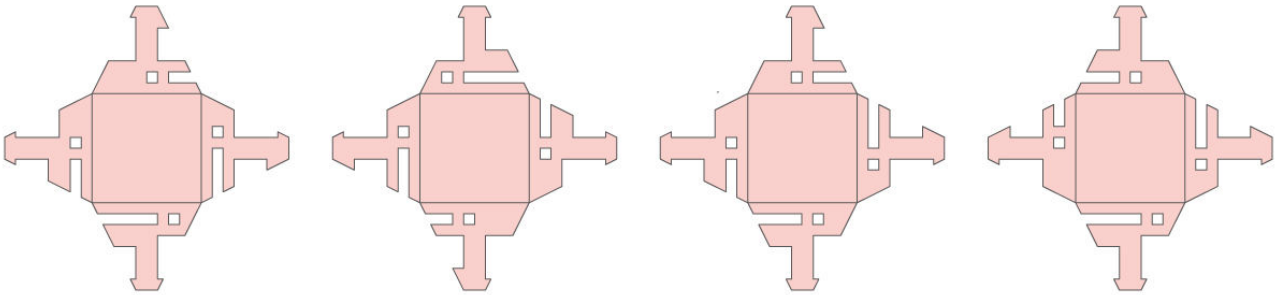




A B C D

Q.50 Two views of a perfume package covering all sides with cut-outs are shown below. Identify the correct packaging sheet used for making the perfume package.





A B C D

PART B

Questions 1 to 3 are mandatory. Answer ALL of them.
Questions 4 to 7 are optional. Answer ONLY ONE of them.

Question No. 1 (Marks 20)

A shop owner is standing in the shop's billing counter, taking money from a customer. The shop has shelves, different kinds of food products, groceries and a weighing scale.

Draw a **freehand** perspective drawing of this setup, showing all the elements listed above.

Note:

- Use only pencils.
- Do not use any drawing instrument such as ruler, compass, set-square etc.
- Do not use any kind of colour.

You will be evaluated for drawing, perspective, light, shade and shadow, scale and proportion as well as the overall composition.

Question No. 2 (Marks 20)

You are given a hand held device which can understand animal behaviour and translate their needs and thoughts into images which can be understood by human beings. This data can be stored in various digital media. Create **five sketches** with brief notes to illustrate creative uses of this device.

You will be evaluated for imagination, creativity, diversity of ideas, originality of ideas and clarity of visual presentation.

Question No. 3 (Marks 10)

Construct **two different stories** from a combination of these 3 words: Farmer, Gold and Tree.
Each story should not be longer than three sentences.

You will be evaluated for variety and creativity of the plots.

Question 4: Optional (Product Design) (Marks 50)

Cities have a large number of vendors who move around selling various commodities. Due to the lack of dedicated space to sell, many vendors prefer to move around using hand carts and other accessories. Design a system or set of accessories to be used along with the existing bicycles, which the vendor can use to move around and sell toys for kids.

The vendor should be able to display and sell the products when stationary/parked; as well as pack up and move. Consider ease of assembly, material & manufacturing processes, ease of use, user friendly display, ease of opening and packing up.

1. Present rough sketches of design alternatives.
2. Present your final design concept with a neat sketch showing all the details.
3. Indicate the materials and processes used.
4. Support your design with a brief note on the design decisions taken.

Your solution will be evaluated for:

1. Originality and Innovative use of material in constrained situations.
2. Ability to understand the needs of the seller and buyers in the given situation.
3. Appropriateness of material and processes, assembly, manufacturing process, deployment and transportation issues.
4. Ability to articulate design decisions and effectiveness of presentation.

Question 5: Optional (Interaction Design) (Marks 50)

A science museum which allows entry only to children between the age group 10–14 has decided to develop a digital hand-held device for the museum. This device will serve as a digital guide which will be given at the time of entry. The device should help children understand the exhibits and their underlying concepts. The device should be useful for a single child, as well as children in groups.

a. Visualize the 3D form of the device and suggest a name for it. Present the design in the form of **sketches/drawings**.

b. Detail the graphical interface of the device. Present the interface in the form of **sketches/drawings**.

c. Illustrate in detail **three typical scenarios** of the use of the device. Each scenario should illustrate **a unique set of design features** of the device. Present the interface and information flow with neat sketches and brief explanatory notes.

You will be evaluated for

1. Originality of ideas.
2. Ability to understand the strengths and weaknesses of the user.
3. Logic and flow in the interface, usability and appropriateness of the information.
4. Ability to articulate design decisions and effectiveness of presentation.

Question 6 Optional (Animation) (Marks 50)

A folktale has to be made into an animation film. Read the story carefully and complete the task given below.

The Story of Dhanna Bhagat

Once there was a young farmer in Rajasthan named Dhanna Singh. He was tall and quite ordinary looking. He had a winsome disposition that made him quite popular with the people in his community. He would always have time to listen to their problems and help them when they came to him in times of need. He was of a charitable nature but his father thought he was a good for nothing. Why, because Dhanna was too generous and any money his father gave him to invest in the fields he would give away to the poor and needy.

One day, his father sent him to a nearby town that held a weekly market. There Dhanna was to sell the produce from the farm and with the money earned he was to bring home seeds for the new crop. Dhanna piled up the cart with the rich produce and set off for the town. He was very excited to go to the town as he had some good friends there. On the way he was stopped by four priests who wanted a ride to town. He asked them to get on to the cart and they entertained him with songs and stories. When they reached the outskirts of the town they asked him to make some donations. Dhanna had no money. So he gifted them half the produce. He continued with his journey and before he could reach the market he came across an old lady who was sitting on the side of the street and crying. She had been thrown out of her house by her cruel son. Dhanna gave her the rest of the produce and she gave him a few seeds in return.

Dhanna went home and when his father asked him what he did with the seeds, he said he had already planted them in the field. His father was pleased, but not for long. After a few weeks when he went to the field to inspect his father found large wild gourds that only the goats liked to eat. He called Dhanna to the field and pointing at them asked him what he had sown? Dhanna picked up the gourd to show him and in anger his father dashed it to the ground. As it burst open on the ground it was filled with diamonds and emeralds. His father was shocked and elated. He realised that Dhanna was no ordinary child and named him Dhanna Bhagat. From that day on Dhanna was never scolded for being generous.

Create a story board based on the above story. The storyboard must include all the major events in the story.

You will be evaluated for

1. Clarity and continuity in story.
2. Plot structure.
3. Visual continuity.
4. Point of view.
5. Character design.

Question 7: Optional (Visual Communication) (Marks 50)

Government of India is starting a new Ayurvedic Medical Research Centre (AMRC) in Karnataka. AMRC is an autonomous institute setup to conduct research in various fields related to Ayurveda.

Design a symbol and a logo for this centre.

Symbol is a visual representation of various ideas associated with the centre. Logo is the way in which the name of the centre is depicted through letter forms or typefaces. Final logo should show “AMRC Karnataka” in English.

Symbol and logo should be designed in such a way that they can be used in black & white and in colour. They will be used in various places including stationery, vehicles, publicity material, website, digital media, 3D forms and architecture. The final design should be visible in various sizes.

The design should reflect the following key words: Ayurveda, India, research and development.

1. Present rough sketches of **three design alternatives** with brief notes on each alternative (less than 50 words each).
2. Present the **final design proposal** with a neat sketch and relevant design specifications.
3. Illustrate with sketches how the symbol and the logo will be used in the stationery and website of the institute.
4. Write a brief note on the final symbol and logo (less than 50 words).

You will be evaluated for

1. Originality of ideas.
2. Ability to understand and reflect the keywords of the design brief.
3. Clarity of thought, ability to articulate design decisions and effectiveness of presentation.
4. Ability to create a visual identity which can be executed effectively across media.