



**MIT INSTITUTE
OF DESIGN**

INDORE



॥ विद्याः पुण्यते विद्याम् ॥

avantika
UNIVERSITY

Design Scholarship Test

DST 2025

Question Paper

For M.Des. Program

Section A - MCQ

Section A (75 marks) contains **25 Multiple Choice Questions (MCQ)**. Each question has multiple choices, of which **ONLY** one is the correct answer. Each correct answer will be awarded **3 marks**. Questions not attempted or answered incorrectly will be given zero marks.

Questions from **1 to 25** belong to this section.

Q.01 Observe the sequence of mouth shapes from left to right and imagine them moving one after the other. Pick the word from the choices provided that is being spoken by the character.



- a) Channing
 - b) Chantal
 - c) Chiquitita
 - d) Lachimolala
- Q.02** In how many ways could you divide a circle using two lines into four parts of the same shape and size?
- a) One
 - b) Two
 - c) Three
 - d) Infinite
- Q. 03** A tank with an internal height and internal width of 5 meters is filled with edible oil. It dispenses the oil at an approximate rate of 14 cubic mts/hr and

takes 7 hours to empty. (Take the value of $\pi = 3.14$)

What kind of geometry does the oil tank have?

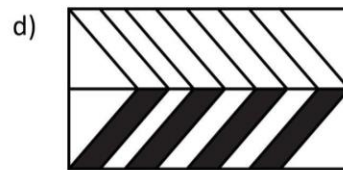
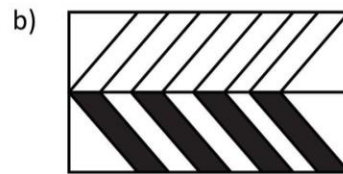
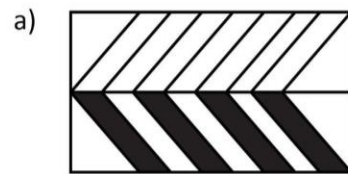
- a) Cubical
- b) Spherical
- c) Cylindrical
- d) None of the above

Q.04 Before the advent of machines run by electric power, the hand-held device shown below was used for a specific purpose. Identify the purpose.



- a) To crush and filter coffee beans
- b) To crush fruits
- c) To make jams and purees
- d) To knead the dough

Q.05 Select the correct image for the following reflection in the plane mirror.



Q.06 Which of the following artworks /paintings suggests 'Joy'?



a)



b)

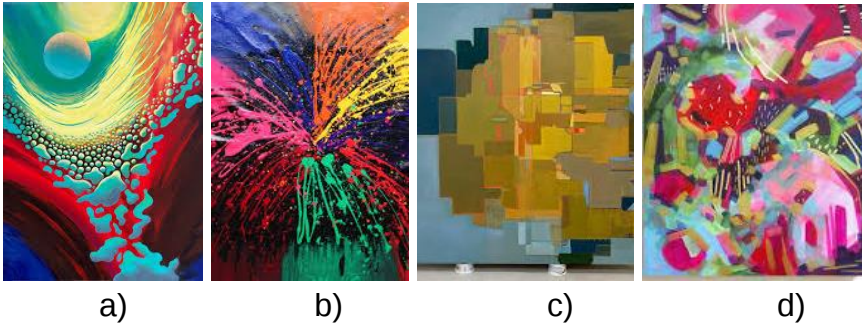


c)

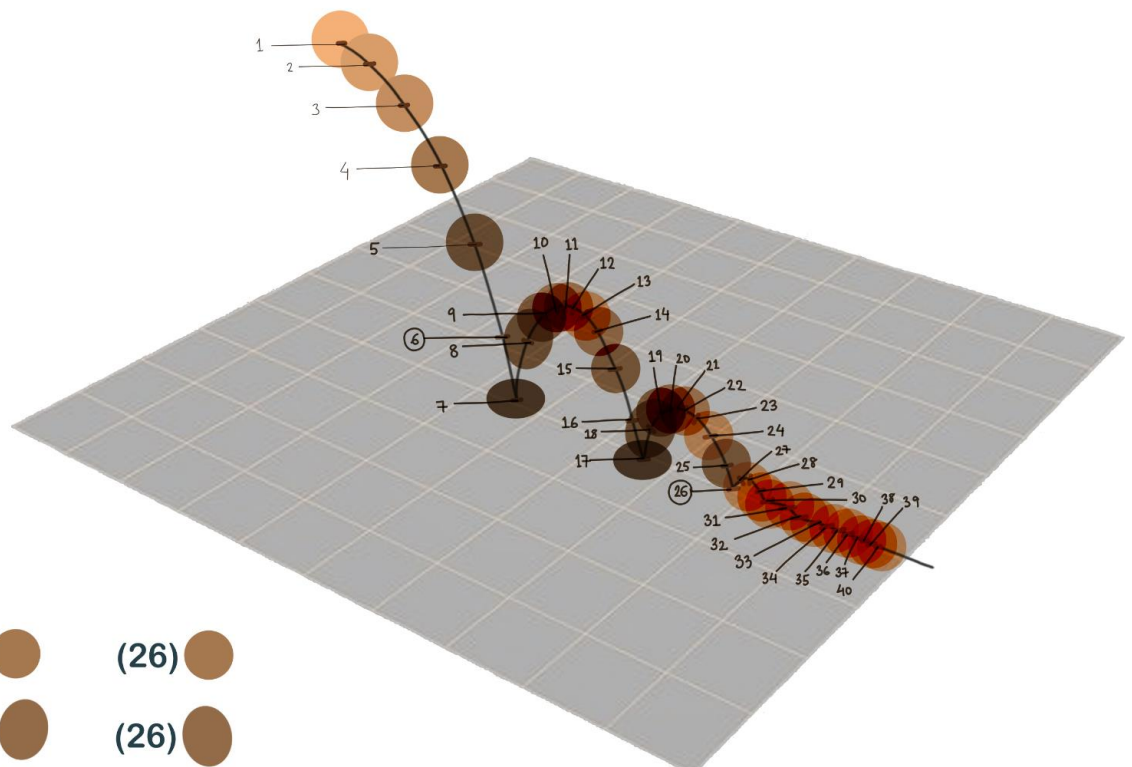


d)

Q.07 Which of the following artworks/paintings suggests 'Sadness'?



Q.08 A ball is bounced once, and its movement is captured. The arc that is made by the ball is marked and numbered. Observe the numbered marks formed by the ball and select the option that matches the image for the missing encircled numbers. (Principle of animation)



- | | |
|---|--|
| (a) (6)  | (26)  |
| (b) (6)  | (26)  |
| (c) (6)  | (26)  |
| (d) (6)  | (26)  |

Q.09 The Abathsahayeshwarar temple joins UNESCO's recognition alongside other Southeast Asian temples (shown below) are known for similar architectural and spiritual symbolism.



*(Images show UNESCO-recognised heritage temples:
Borobudur (Indonesia), Angkor Wat (Cambodia), and Brihadeeswarar Temple (India)*

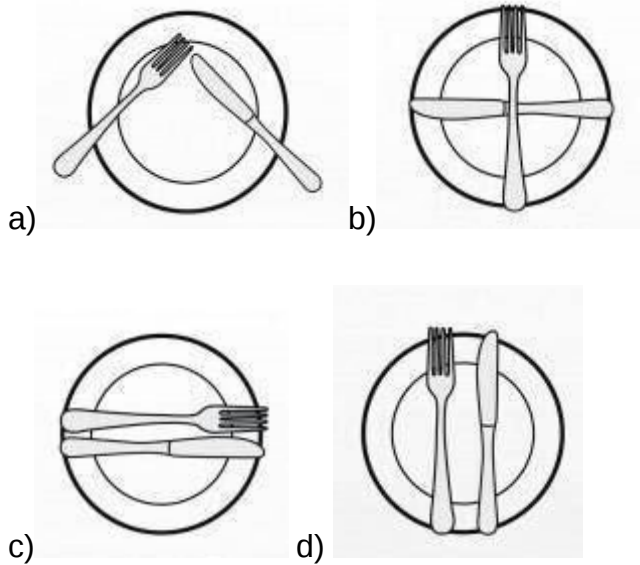


Abathsahayeshwarar temple

What common cultural thread connects these monuments?

- a) All were built under Buddhist influence
- b) All exhibit Dravidian and Hindu temple architectural influences of South Asia
- c) All were commissioned during the Mughal era
- d) All are made entirely of marble

Q. 10 According to international dining etiquette, which cutlery position indicates that the meal has been excellent?



Q. 11 Six creative professionals, Aarav, Bhavna, Cyrus, Dia, Eshan, and Freya, are part of a multidisciplinary design studio working on four projects:

Sustainable Furniture Design (F), Brand Experience Revamp (B),
Smart Mobility Interface (M), and Museum Spatial Narrative (U).

Each designer works on exactly two projects.

Use the clues given below to answer the question that follows.

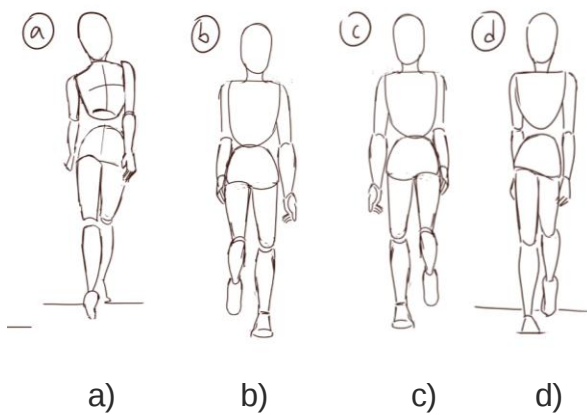
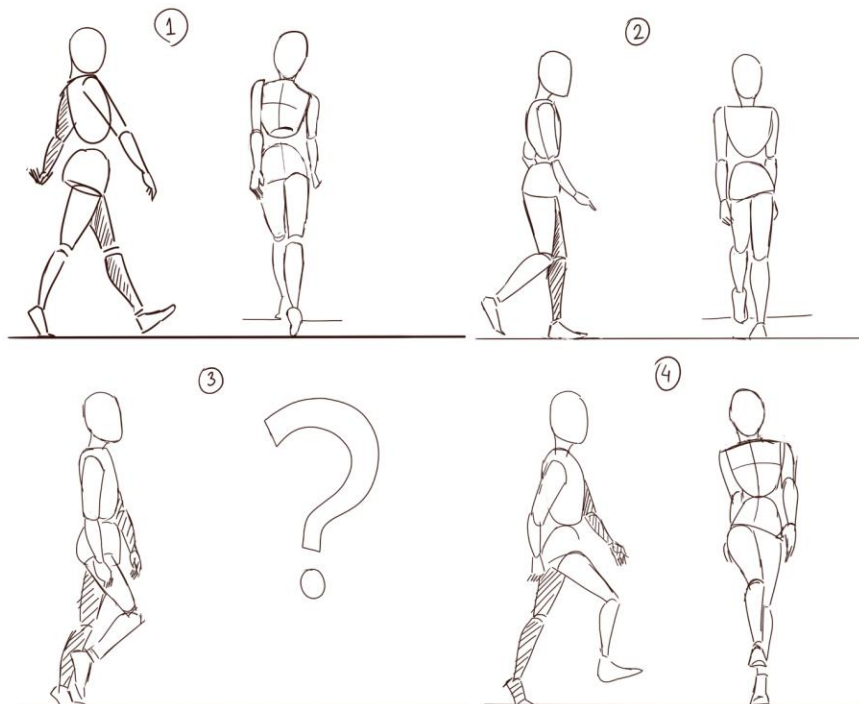
Clues:

- Aarav works on F and B
- Bhavna works on B and M
- Cyrus works on F and U
- Eshan works on U and B
- Freya works on F and M
- Each project involves exactly three designers.

Based on the above information, which designer works on both the Smart Mobility Interface (M) and the Museum Spatial Narrative (U) projects?

- a) Aarav
- b) Dia
- c) Freya
- c) Cyrus

Q.12 Observe the sequence of walk cycles that shows the front and side profiles. Pick the option which best fits the missing front profile from sequence 3.

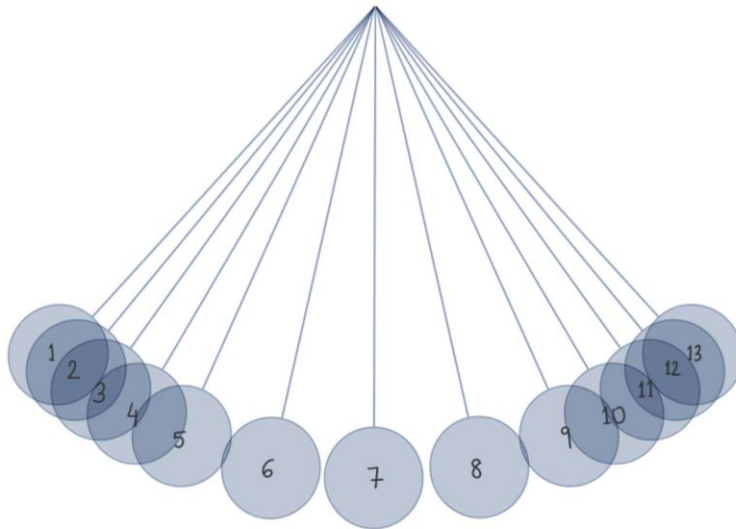


Q.13 In early 2025, a powerful moment unfolded in New Zealand's Parliament when Māori Members of Parliament performed the haka to protest a proposed bill. In the context of this act, what does the 'haka' symbolise?



- a) A ritual of mourning for ancestral spirits
- b) A traditional war dance expressing unity, resistance, and defiance
- c) A ceremonial greeting performed before legislative sessions
- d) A sacred prayer used exclusively during religious ceremonies

- Q.14** The arc of the pendulum swing is marked with numbered key frames. Which of the following keyframes is a mistake and should not be present in the pendulum arc?



- a) 5 and 9
 - b) 1, 7, and 13
 - c) 7
 - d) 13
- Q.15** A graphic designer is creating labels to wrap around cylindrical coffee mugs for a branding project. Each mug has a height of 10 cm and a diameter of 8 cm. What should be the minimum rectangular area of paper required to cover the curved surface of one mug (excluding top and bottom)?
- a) 248 sq cm
 - b) 251.2 sq cm
 - c) 256 sq cm
 - d) 262 sq cm

Q.16 Good 'in-car' user experience design should emphasise the most on

- a) Developing hidden controls
- b) Creating multiple screens
- c) Minimising cognitive load on the user
- d) Developing complex animations

Q.17 Find the correct patch to complete the typographic illustration.



a.)



b.)



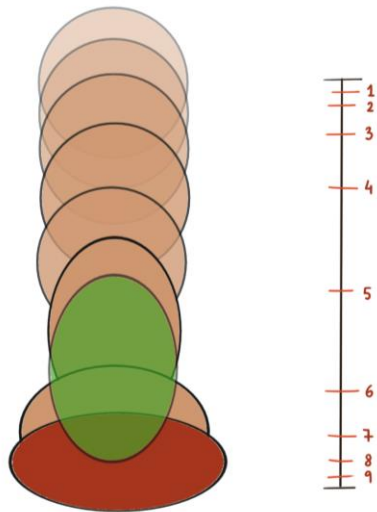
c.)



d.)



Q.18 Which principle of animation does the sequential image below follow?



- a) Ease in and out
- b) Follow through
- c) Squash and Stretch
- d) Overlapping action

Q.19 Which of the following word formations will not read the same in their reflection in a plane mirror?

a) **HIOX**

b) **HOXI**

c) **OXHI**

d)

IGXH

Q. 20 Observe the sequence of mouth shapes and imagine them moving one after the other from left to right. Pick the word from the choices provided that is being spoken by the character.



- a) Channing
- b) Chantal
- c) Chiquitita
- d) Lachimolala

Q.21 One of the six R's of sustainability is missing from the visual set. Identify it.



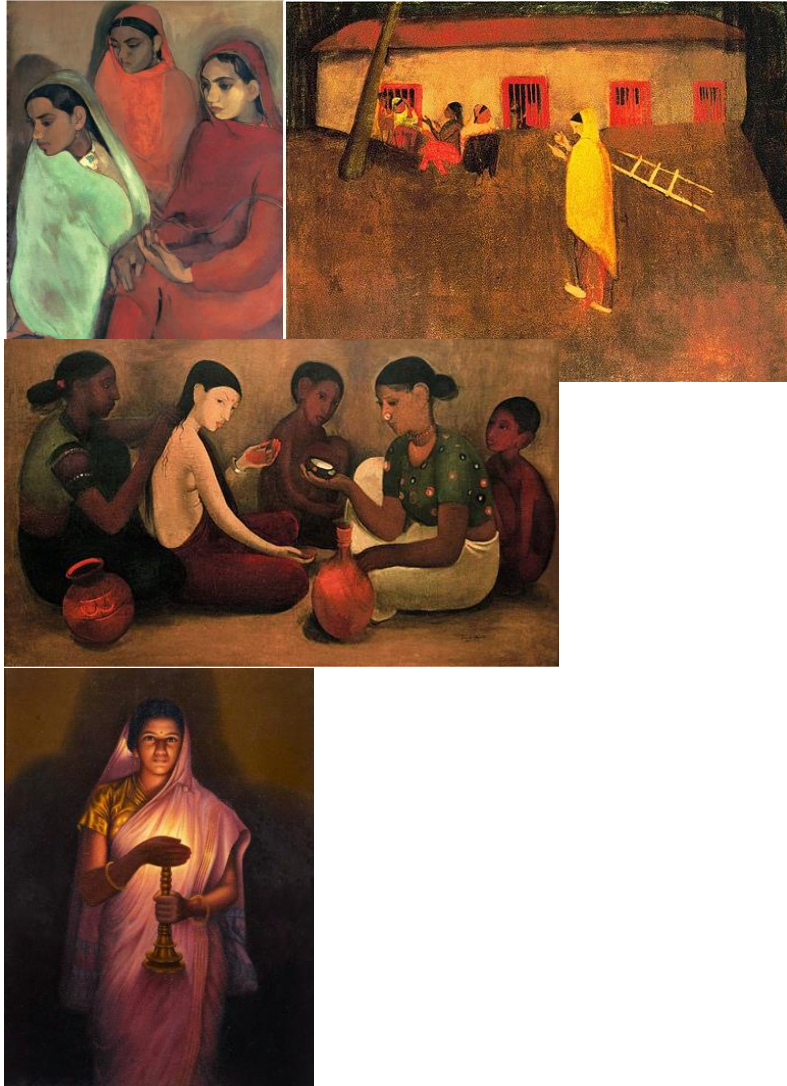
- a) Reduce
- b) Reinvent
- c) Recreate
- d) Rebrand

Q.22 Which of the following statements is True about the treatment of depreciation in the financial statements of an organisation?

- a) Depreciation is charged only on tangible fixed assets and never on intangible assets

- b) Accumulated depreciation is shown on the balance sheet separately and is not deducted from the asset's gross value
- c) Depreciation expense reduces the book value of an asset and is shown on the profit and loss account
- d) Depreciation is an optional charge and can be omitted without impacting the financial statements

Q. 23 The following paintings represent early 20th-century Indian modernist styles. Identify the work not painted by Amrita Sher-Gil.



- a) Three girls
- b) Bride's toilet
- c) Village scene
- d) Woman with the Lamp

- Q.24** The image below is how a person with normal colour vision will view it.
Select an appropriate image from the options given, showing how a person with Red-green colour blindness will see the same image.



a)



b)

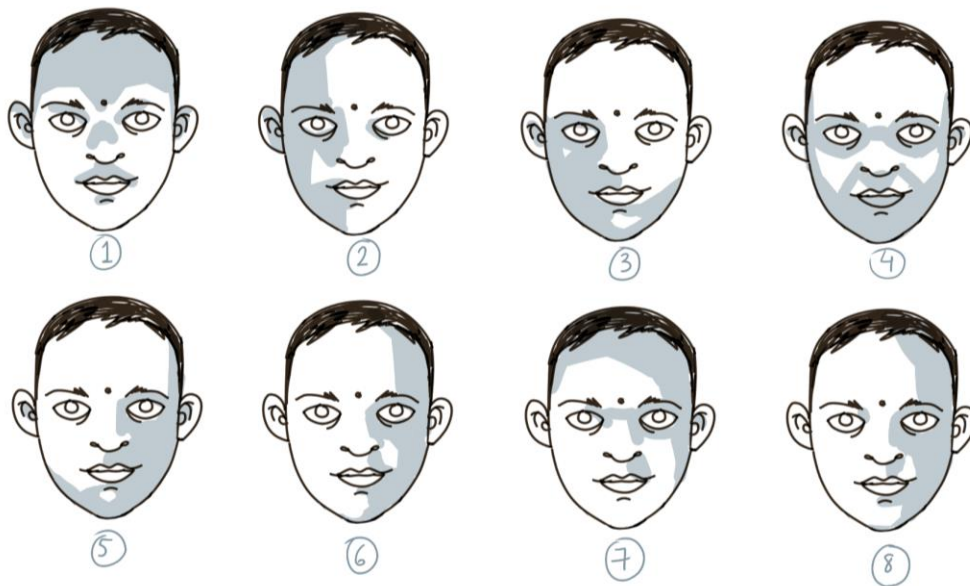


c)



d)

Q.25 A torchlight illuminates a face. The light source moves around the character's head in a rotative path. Which of the following sequences represents the rotating illumination correctly?



- a) Anticlockwise
- b) Clockwise
- c) Orbital
- d) Orbital and clockwise

End of Section A

Section B - AINT

Section B (75 marks) contains a total of **15 Answer Is Number Type (AINT)** questions. For each question, the answer is a real number rounded off to 2 decimal places. No choices will be shown for these questions. Each correct answer will receive **5 marks**. Questions not attempted or answered incorrectly will be given zero.

Questions from 26 to 40 belong to this section.

Q.26 A box contains 5 red balls, 3 blue balls, and 2 green balls.
If one ball is picked at random, what is the probability in percentage that it is not blue?

Q.27 You are trying to remember the price of an expensive vacation trip that you saw in an advertisement. You remember the following facts by memory:

- The price was a five-digit number, and one of the digits was 7
- The second digit was thrice the value of the first digit.
- The last digit was two more than the value of the fourth digit

What was the highest possible price of the vacation trip you saw advertised?

Q.28 Once upon a time, there was a giant rat named 'Jorry'
(Jorry had a little cousin named Jerry!)

Jorry was a crafty eater of cheddar cheese with a mathematical mindset. One day, he found a large cylindrical chunk of cheese, and he challenged himself to craft the biggest possible cube out of it. The image below shows Jorry and his adventures with cheese.

Could you guess how much cheese Jorry had eaten (in grams) before completing this mathematical miracle of creating a perfect cheesy cube? (Jorry decided to do some other adventure with the crafted cube the next day!).

Data: The cylindrical cheese was 10 cm tall and 10 cm wide, and its density was 1.0 g/cc. Assume the value of $\pi = 3.14$ (if needed).



Q.29 Find out a special number between 1 and 100, using the following clues:

1. It is a two-digit number (Call it AB) where the two digits add up to 13
2. Flip the above digits, and you have a new number BA
3. The difference between AB and BA is another new number XY
4. $X+Y$ is 9
5. The square root of this special number is a positive integer

Q.30 A small shopkeeper buys 40 T-shirts for ₹400 each.
She pays ₹20 per shirt to the sales representative as commission for selling it at ₹500 each.
What is the net profit she earns as a percentage after selling 20 shirts?

Q.31 Find the next number in the following sequences.

12, 4, 16, 36, ?

Q.32 A CNC machine makes engraved panels in batches. Each hour, its speed increases by 20% compared to the previous hour due to iterative software optimisation. If the machine engraved 150 panels in the third hour, how many

panels did it engrave in the first hour (round to the nearest whole number)?

- Q.33** Assume you are highly skilled in working with a variety of woods. You are working in the wood workshop and need to chisel out the largest sphere from a given wooden cube of side 20 cm made of teak wood.

What will be the minimum mass (in kg) of the wood you would waste after finishing the perfect cube?

Data: Assume the density of the teak wood is 0.8 g/c and the value of $\pi = 3.14$

- Q.34** You spray-painted a spherical and a cylindrical object made of wood. Both the diameter and height of the objects are 10 cm, with the coating thickness of 2 mm.

Please assume the dripping loss is negligible in both cases, and the density of the paint is 0.8 gm/cc.

Find out the difference between the quantities of paint you used for both the Objects in gms.

- Q.35** A UI designer is creating icons for a mobile app. On a certain device, the screen width is 1080 pixels, and 6 icons must fit in a single row with equal horizontal spacing. Each icon is a square. There are equal side margins on the left and right of the row, and equal gaps between every pair of adjacent icons. The side margins are twice as wide as the gap between icons. The designer decides that each icon should occupy exactly 12.5% of the total screen width.

What is the width of each gap between two adjacent icons, in pixels?

- Q.36** Each of the following sequences follows the same rule, and each one continues until it resolves to a single-digit number, at which point it naturally stops. How should the sequence starting with 87 continue?

For example, the balance sequence is 75, 35, 5 - the answer will be 75355.

35, 15, 5

68, 48, 32, 6

79, 63, 18, 8

87, ?, ?, ?, ?

- Q.37** A brand sells a cylindrical container with an external diameter of 9.0 cm and an external height of 18.0 cm. The body and circular top and bottom are made from thin sheet material; you may ignore the thickness of the sheet metal.

The company wants a new version that uses 18% less surface area of material in total, while keeping the same height- to- diameter proportion and the same circular top- bottom relationship (i.e., it remains a right circular cylinder scaled uniformly).

What should the new external diameter be, in centimetres, to two decimal places, so that the total surface area is 18% less than the original?

- Q.38** An exhibition designer lays out a straight line of identical circular stools for an interactive installation along a corridor. Each stool has a diameter of 0.48 m. For safety and comfort, there must be a clear gap of 0.32 m between adjacent stools, measured edge-to-edge.

The front edge of the first stool must be exactly 0.75 m from the entrance door. For safety near the far wall, every stool must be placed so that its back edge is at least 0.90 m away from the wall. The total distance from the door to the far wall along this line is 12.50 m.

The designer wants to use their intuition to create a layout that feels comfortable for visitors approaching the last stool and making the final turn, without crowding the wall. Stools are placed in a straight line with equal spacing between their centres, and the designer chooses the maximum whole number of stools that still keeps the last stool at a comfortable distance from the wall.

A visitor walks from the door to the exact centre of the last stool in the line. What is the distance, in meters, from the door to the centre of the last stool, to two decimal places?"

Q. 39 A designer is developing a new cylindrical cardboard container for premium tea.

- The cardboard thickness is 2 mm.
- The internal diameter of the container is 8.0 cm.
- The internal height is 10.0 cm.
- Tea is packed inside a thin internal pouch that must not exceed 85% of the container's internal volume (to leave room for air and handling).
- The tea granules have an effective bulk density of 0.42 g/cm³.
- Assume the value of $\pi = 3.14$ (if needed).

For a special edition, the marketing team wants each container to hold exactly 200 g of tea (within the 85% volume limit).

Does this container meet the requirement? If not, by how many grams does it fall short of the 200 g target? Give the magnitude of the difference in grams.

Q. 40 You are asked to create a new box for a tea brand. The box must hold exactly 250 cc. The client wants to ensure that the tea boxes look pleasing to the viewers' eye when displayed in the shop windows, on either side-on or front-on positions.

As a designer, you thought of using the golden ratio proportion for the dimensions of the box. The length (longer side) and height are in the golden ratio, and the height (longer side) and width also follow the golden ratio. What should be the width of the box, in centimetres, to two decimal places?

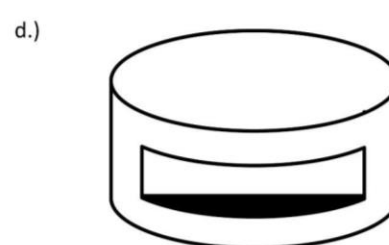
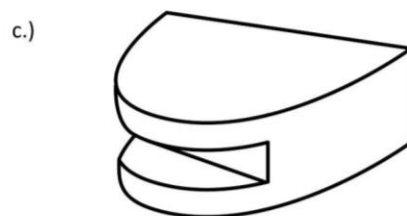
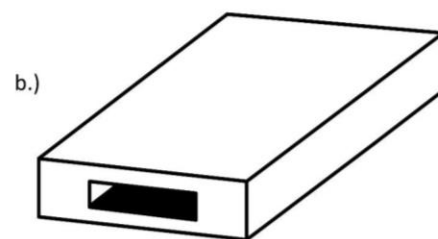
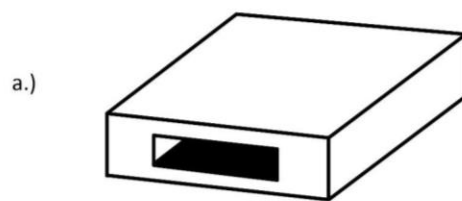
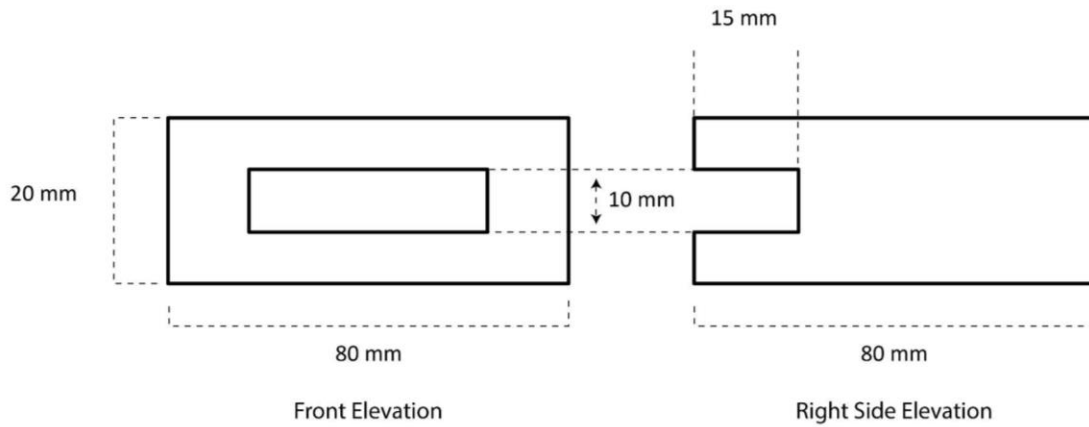
End of Section B

Section C - MSQ

Section C (50 marks) contains a total of **10 Multiple Select Questions (MSQ)**. Each question may have one or more than one correct choice(s) out of the given choices. A question is correctly answered if ALL the proper choices and NO wrong choices are selected for that question. Each correct answer will receive **5 marks**. Questions not attempted or answered incorrectly will receive zero marks.

Questions from 41 to 50 belong to this section.

Q.41 Study the orthographic views of a wooden block carefully and select the correct option/s from its 3D views. (c,d)



Q.42 This is a normal scene of a city bus stop in India.



What relevant problem areas can you identify?

- a) Seating
- b) Shade
- c) Signage
- d) Crowd
- e) Lack of street chaiwala or snacks

Q.43 You have been asked to redesign an old bus shelter outside a public hospital. People using it include patients with low stamina, anxious relatives, hospital staff in a hurry, and occasional visitors unfamiliar with the city. The municipality has a limited budget for construction but is open to low-cost visual improvements.

Which of the following considerations most appropriately reflects empathetic design thinking for this context?

- a) Prioritising sleek glass panels and glossy finishes to make the shelter look “premium” and modern.
- b) Providing clear, high-contrast signage showing bus numbers and the hospital directions visible even from a wheelchair user’s eye level.
- c) Ensuring seating with back support and some armrests, with at least one lower seat height to help elderly and post-operative patients sit and stand comfortably.
- d) Using loud digital advertising screens to generate revenue and keep commuters entertained
- e) Designing a small sheltered zone that allows partial privacy for people who may be emotionally distressed, without blocking visibility or safety.

Q.44 A design team is developing a mobile app that reminds users to take daily medicines. Many target users are elderly, some have mild cognitive decline, and some are visually impaired. The app must support their independence rather than make them feel monitored or “controlled”.

Which design approaches best demonstrate empathy and sensitivity? (a, c, e)

- a) Large, high-contrast text and simple icons, with voice prompts that can be turned on or off.
- b) Gamification elements with points and leaderboards comparing

adherence among users.

- c) Allowing users or caregivers to customise reminder times, tones, and language, including calm and non-alarming phrases.
- d) Automatically sending push notifications to all family members whenever a dose is missed, without user consent.
- e) Providing a simple log that the user can show to a doctor, highlighting patterns of the missed doses without judgmental language.

Q. 45 A toy company is designing a building-block set intended to encourage collaborative play among children aged 5–9, including children with motor or cognitive differences.

Which design decisions most strongly reflect inclusive, empathetic thinking?

- a) Providing blocks in a few shapes that can interlock easily with low force, with textures that give tactile feedback.
- b) Ensuring all characters and scenarios reflect only one dominant culture and family structure to maintain a “consistent story”.
- c) Including visual instructions with step-by-step pictorial sequences as well as open-ended play suggestions.
- d) Choosing a colour palette and graphic language that avoids reinforcing harmful stereotypes about gender.
- e) Designing the toy to be enjoyable only when used exactly as per the manual to teach “discipline”.

Q. 46 A restaurant in a heritage building wants to modernise its interiors without losing the character of old stone walls and wooden beams. Guests come for both food and atmosphere, including older patrons with lower visual acuity.

Which lighting strategies combine aesthetic sensitivity with user comfort?

- a) Using extremely bright white LED panels that flatten textures but make everything very visible.

- b) Layering warm, indirect lighting to highlight textures of walls and beams, combined with slightly brighter, glare-free task lighting at tables.
- c) Using dynamic coloured lights that rapidly change hues to create a “club” feel.
- d) Controlling reflections and glare on table surfaces so food colours appear natural and inviting.
- e) Keeping the space so dim that menus are barely readable, to feel “exclusive”.

Q. 47 An NGO wants a short, static storyboard (4–6 frames) encouraging people to respectfully dispose of plastic waste near a river used by both villagers and tourists.

Which approaches show strong narrative design and empathy? (b,c,d)

- a) Portraying “bad” characters as faceless, villainous crowds with no nuance, to shame viewers.
- b) Showing a small, relatable sequence where an individual’s careless act leads to visible harm (animals, children, local livelihood), followed by a hopeful corrective action.
- c) Using framing, pacing, and composition to guide the viewer’s eye through cause, consequence, and solution.
- d) Ending with a realistic, achievable action viewers can take, depicted clearly in the last frame.
- e) Using highly graphic, disturbing imagery that may trigger viewers without providing any control.

Q. 48 A small local brand sells reusable water bottles and wants users to emotionally connect with the product so they keep it longer instead of frequently replacing it.

Which strategies reflect an understanding of emotional durability and user Empathy?

- a) Allowing subtle customisation (stickers, colour bands, engraving) so users can personalise the bottle.
- b) Designing the bottle to follow planned obsolescence.
- c) Selecting materials that age gracefully (e.g., slight patina) rather than looking “damaged” quickly.
- d) Incorporating a narrative about local sourcing and community impact on the packaging in a concise, sincere visual story.
- e) Making the bottle deliberately fragile to push users to buy replacements.

Q. 49 You are designing the acoustic environment for a metro train.
Current announcements are loud, harsh, and repeated too often, causing stress for regular commuters, yet the information must remain clear for newcomers.

Which interventions demonstrate sensitivity to both function and user comfort?

- a) Calibrating announcement volume so it remains audible over ambient noise but avoids sudden, sharp peaks.
- b) Using a calm, clear voice with consistent pacing and minimal unnecessary messages.
- c) Adding frequent promotional messages between every station announcement to maximise advertising revenue.
- d) Coordinating simple audio chimes with visual displays to support those who may not fully understand the spoken language.
- e) Randomly altering voice and tone to keep commuters “alert”.

Q.50 A digital portal for scholarship applications often rejects uploads due to incorrect file sizes or formats. Current error messages are technical and blunt, leading to confusion and anxiety for first-generation college aspirants.

Which revisions show both interaction design skill and empathy?

- a) Clearly stating what went wrong in simple language, and specifying acceptable file formats and size limits.
- b) Providing a direct link or button to “How to resize or convert your file” with visual guides.
- c) Displaying “Error 478: upload failed” without further explanation, to keep it “clean”.
- d) Using a non-blaming tone, acknowledging that many applicants may be new to such processes.
- e) Automatically deleting all previously filled form data whenever any error occurs