Design Scholarship Test

DST 2024

Question Paper

For M.Des. Program

M.Des. Question Paper Specific Instructions

1. The test is **3 hours** long and consists of **55 questions,** for **200 marks.** The paper is divided into three sections: A, B, and C. All sections are compulsory.

2. **Section A (50 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 2 marks. Questions not attempted or answered wrongly will be given zero marks.

   Questions from 1 to 25 belong to this section.

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

   Questions from 26 to 40 belong to this section.

4. **Section C (75 marks)** contains **15 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 correct choices and NO wrong choices are selected for that question. Each correct answer will receive **5 marks**. Questions not attempted or answered wrongly will be given zero marks.

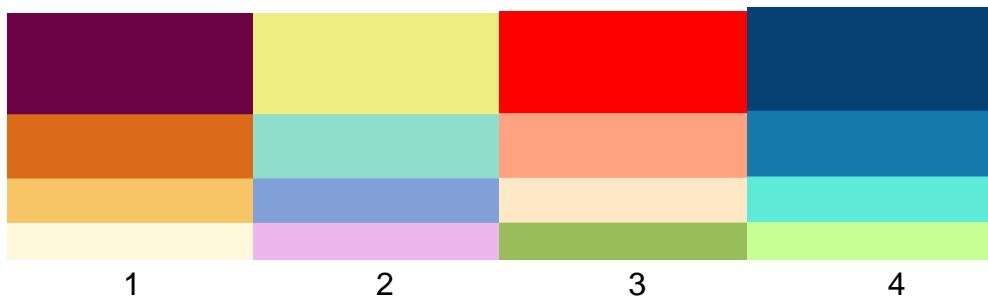   Questions from 41 to 55 belong to this section.

   The marking scheme for the paper is given below.

Section	Number of Questions	Marks for each correct Question	Marks for each wrong answer	Marks for each question not attempted	Total Marks for the Section
A- MCQ	25	2	0	0	50
B - AINT	15	5	0	0	75
C - MSQ	15	5	0	0	75
Total	**55**				**200**

Section A - MCQ

Section A (50 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 **2 marks.** Questions not attempted or answered wrongly will be given zero marks. Questions from **1 to 25** belong to this section.

Q.01 The seasons in our country bring different colour palettes for us to see, and admire. Match the following colour palettes with the seasons.

| 1 | 2 | 3 | 4 |

a) 1 - Autumn, 2 - Spring, 3 - Winter, 4 - Summer
b) 1 - Winter, 2 - Autumn, 3 - Summer, 4 - Spring
c) 1 - Spring, 2 - Summer, 3 - Autumn, 4 - Winter
d) 1 - Autumn, 2 - Spring, 3 - Summer, 4 - Winter

Q.02 Find the next of the following sequences, add them up and select the correct result from the options.

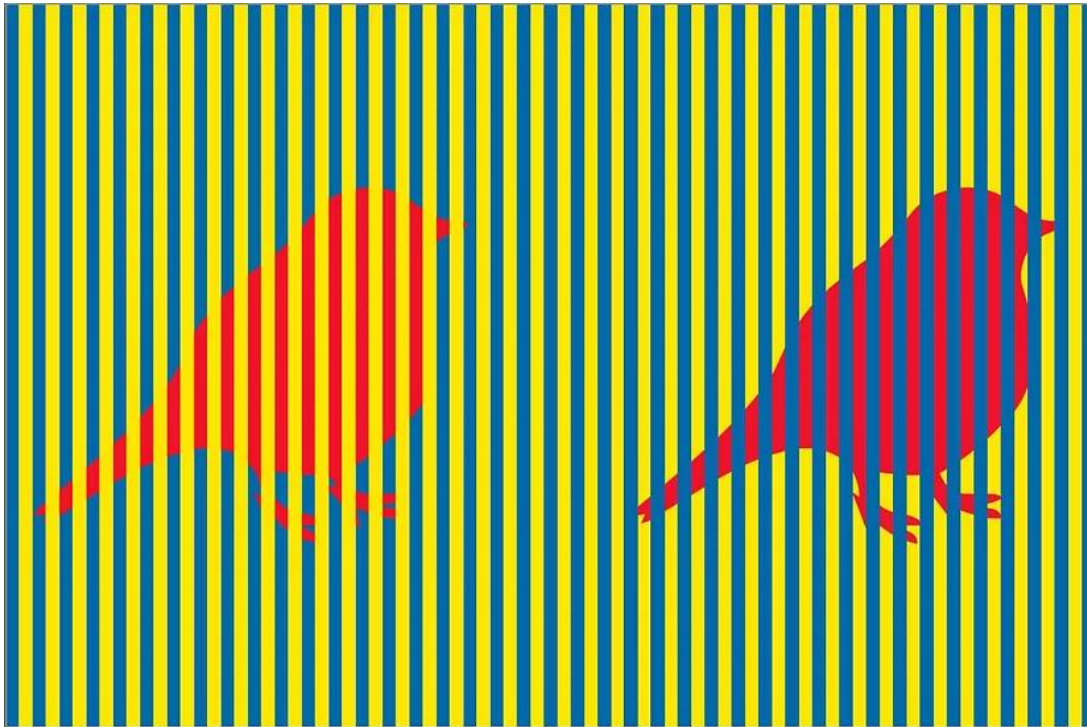Sequence A: 2, 3, 8, 63,**?**
Sequence B: 124, 63, 26,**?**

a) 3976   b) 3975   c) 3977   d) 3978

Q.03 Find the missing number.

ANT = 46   TIN = 38   NUT = 26   FIG =?
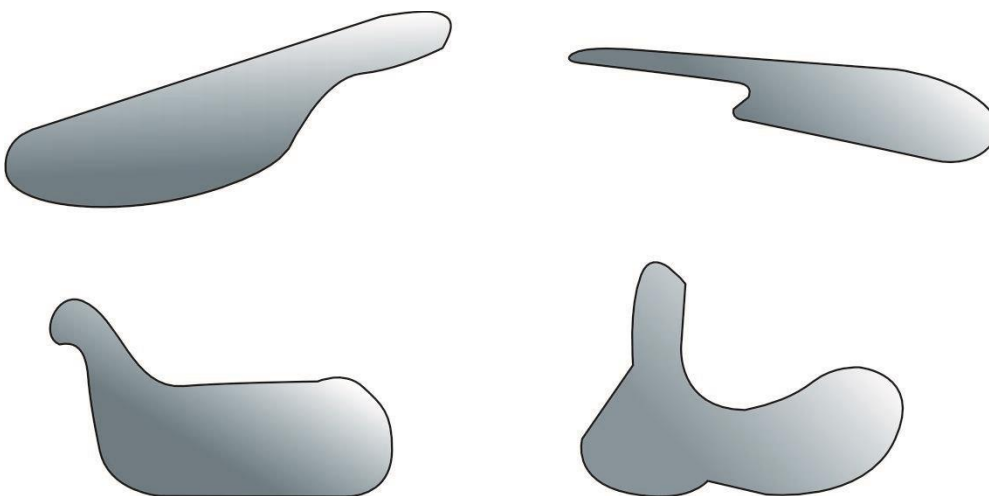
a) 42
b) 59
c) 63
d) None of the above

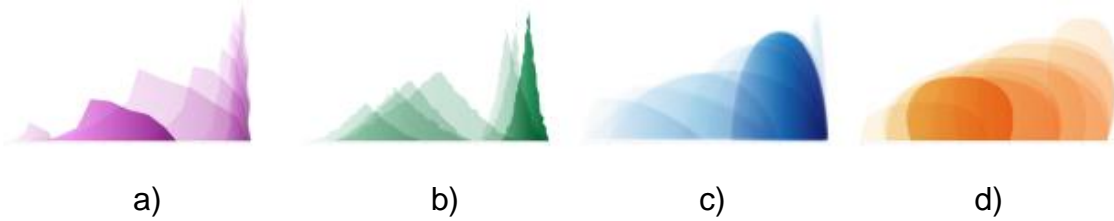**Q.04** Look at the image below and select the right statement.

a) The bird on the left is orange
b) The bird on the right is purple
c) Both the birds are red
d) Both the birds are orange

Q.05 Which of the following shapes suggests 'dynamism'?

a) Top left only   b) Bottom left and right   c) Bottom left only
d) Top left, Top Right

Q.06 Which of the following representations suggests 'Joy'?

a)　　　　　　　b)　　　　　　　c)　　　　　　　d)

Q.07 Which of the following representations suggests 'Sadness'?

a)　　　　　　　b)　　　　　　　c)　　　　　　　d)

Q.08　A right cylinder is cut into equal halves in the middle and the left half is rotated by 90 degrees as shown. How is the surface area of both solids related?

a) Same
b) The Left is more than the right
c) The right is more than the left
d) Not related

Q.09 RGB (Red, Green, Blue) classification represents optical colours and is used for digital screens. Which colour will be represented by the value RGB (256,128,0)?

a) Yellow
b) Orange
c) Brown
d) Cyan

Q. 10 RGB (Red, Green, Blue) classification represents optical colours and is used for digital screens. Which colour will be represented by the value RGB (0,256,256)?

a) Yellow
b) Orange
c) Cyan
d) Magenta

Q. 11 RGB (Red, Green, Blue) classification represents optical colours and is used for digital screens. Which colour will be represented by the value RGB (128,0,128)

a) Orange
b) Magenta
c) Cyan
d) Purple

Q.12 Find the next number in this series.

1 9 1 0 1 9 2 9 4 -

a) 15   b) 17   c) 13   d) 8

Q.13 Ella, Kanal, Nirav and Yohan are all going abroad this month, each to one of These places are Australia, Italy, Mexico, and Switzerland.

● Ella is travelling to Europe. Kanal isn't.
● Nirav has been studying French in anticipation of his trip.
● Yohan has already been to Australia last year, and Ella to Switzerland. They're both going someplace new.
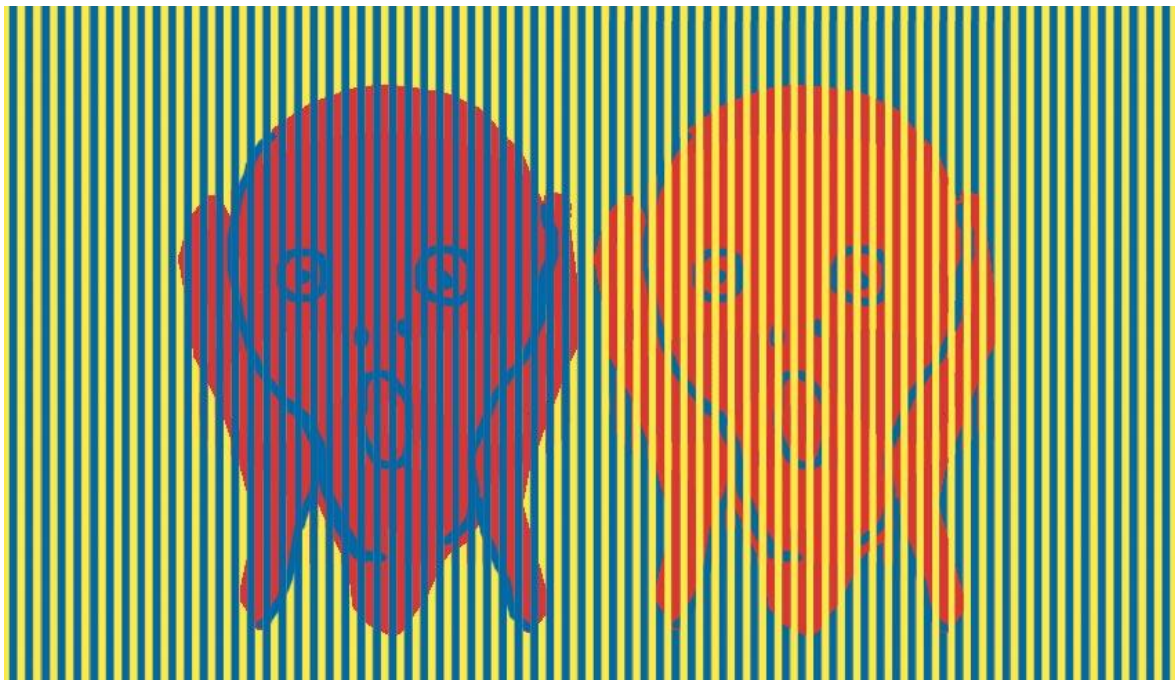
Can you figure out who's going where?

a) Ella: Italy, Kanal: Australia, Nirav: Switzerland, Yohan: Mexico
b) Ella: Italy, Kanal: Mexico, Nirav: Switzerland, Yohan: Australia
c) Ella: Switzerland, Kanal: Mexico, Nirav: Italy, Yohan: Australia
d) Ella: Italy, Kanal: Switzerland, Nirav: Switzerland, Yohan: Australia

Q.14 Please identify the correct sequence of brands these symbols/logos represent.

1	2	3	4

a) 1-Tata Neu, 2-Total, 3-Total Energies, 4-Global
b) 1-Tata Nue, 2-Total Energies, 3-Total, 4-Mastercard
c) 1-Total Energies, 2-Total, 3-Tata Neu, 4-Mastercard
d) 1-Total Energies, 2-Tata Neu, 3-Total, 4-Global

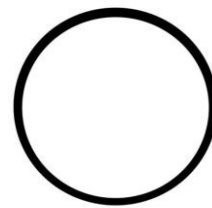**Q.15** Look at the image of the Edvard Munch 'Scream' faces below and select the right statement.

a) The face on the left is purple
b) The face on the right is orange
c) Both the faces are red
d) Both the faces are orange

Q.16 Shakespeare has been one of the most prolific authors and poets. Which of the following is not his work?

a) Lucrece
b) The Merry Wives of Windsor
c) The Taming of the Shrew
d) The Chronicles of the Bard

Q.17 You are making a hollow cylindrical container by folding and pasting of the paper. Which of the dimensional relationships is correct between the following paper cut-outs?

|————————————————— **L** ————————————————| |—---- **D** —----|

L = Length of the cut-out   D = Diameter of the cut-out

a) L = 2πD
b) L = πD
c) L = 0.5πD
d) L = D

Q.18 Which colour scheme is commonly associated with 'Cool' in design?

a)

b)

c)

d)

Q.19 RGB (Red, Green, Blue) classification represents optical colours and is used for digital screens. Which RGB value represents the color "Magenta"?

    a) RGB (256, 0, 256)
    b) RGB (256, 0, 0)
    c) RGB (0, 256, 0)
    d) RGB (0, 0, 256)

Q.20 Which programming language is primarily used for web development?

    a) Python
    b) JavaScript
    c) C++
    d) Java

Q.21 Which of the following software tools is commonly used for generating images from natural language prompts

    a) Photoshop
    b) Illustrator
    c) DALL-E
    d) InDesign

Q.22 Which colour model is used for offset printing?

a) RGB
b) CMYK
c) Pantone
d) HEX

Q.23 What is the basic use of the following product?

a) To clip hair
b) To staple papers
c) To clamp open pouches
d) To store pencil leads

Q.24 What could be a possible use of the following quirky object?

a) Toothpick for big dogs
b) Toothpick for large feline animals
c) Device for eating boiled eggs
d) Bamboo straw with a cleaning pipe

Q.25 What could be a possible use of the following object?

a) To scrape hard mud from the boots
b) To scrape coconut
c) To cut large chunks of meat
d) To scrape mud from the wall
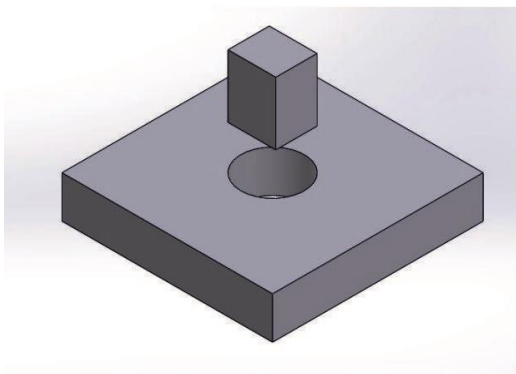
End of Section A

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 wrongly will be given zero. Questions from 26 to 40 belong to this section.

Q.26 You must have heard the phrase 'Square peg in a round hole' - meaning someone who is a misfit.

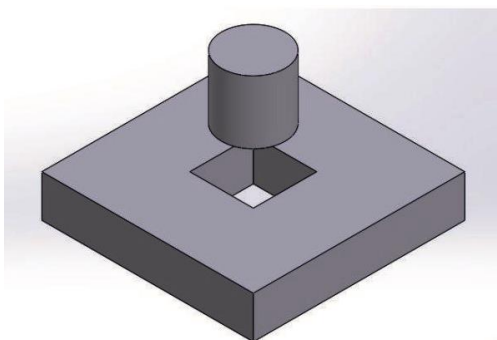What is the percentage of the space the square peg fills in the round hole?

Data: The Square peg has a size S and the diameter of the round hole is D.

Q.27 A round peg fits better into a square hole than a square peg fits into a round hole.

What is the percentage of the space the round peg fills in the square hole?

Data: The Square peg has a size S and the diameter of the round hole is D.

Q.28 Once upon a time there was a rat named 'Curvy'. He was a crafty eater of cheese. One day, 'Curvy' found a large cheese cube, and he got into the act of crafting the biggest possible cylinder from this cube. The image below is to introduce Curvy and his adventures with cheese.

Could you guess how much cheese Curvy must have eaten (in grams) before completing this architectural miracle of creating a perfect cheesy cylinder that Curvey plans to eat in the next inning.

Data: The cheese cube was 10 cm tall and its density was 1.5 gms/cc.
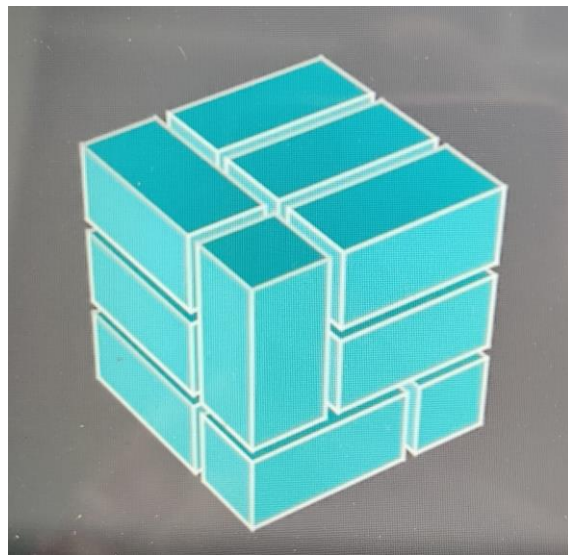   Assume the value of π = 3.14

Q.29 Look carefully at the variant of the Rubik's Cube. Based on your knowledge of the Rubik's cube, please visualise how many turns would be needed to change from configuration 1 to 2.

Configuration 1   **Configuration 2**

Q.30   Visualise a standard Rubik's Cube. It has:

   26 Visible cubies
   1   Invisible Cuby
   8   Corner cubies

?   Edge cubies

How many edge cubies are there in a standard Rubik's Cube?

Q.31 A company sells two products: Product A and Product B. The selling price of Product A is Rs.100 per unit, and the selling price of Product B is Rs 200 per unit.

The company sells 500 units of Product A and 300 units of Product B in a month. The profit on Product A is 15% and that on Product B is 20%.
Calculate the total profit generated by the company from the sale of these two Products in rupees.

Q.32 Count no. of joints in the mannequin.

Q.33 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 mass (in kilograms) of the wood waste you will incur, assuming the density of the teak wood is 0.8 gm/cc.

Data: Assume the value of π = 3.14

Q.34 A company has a total fixed cost of Rs.10,000 per month. The variable cost per unit of the company's product is Rs.5. If the company sells its product for Rs.15 per unit, calculate the break-even point (BEP) in units.

Q.35 Look carefully at both the lists of short stories and their authors. Count the number of differences between the lists.

List 1
The Necklace - Guy de Maupassant
The Gift of the Magi - O.Henry
The Last Leaf - O. Henry
Bartleby, The Scrivener - Herman Melville
The Fly - Katherine Mansfield
The Dead - James Joyce
The Yellow Wallpaper -Charlotte Gilman
The Monkey's Paw - W.W. Jacob
The Three Questions - Leo Tolstoy
The Overcoat - Nikolai Gogol
Meneseteung - Alice Munroe
The Postmaster - Rabindranath Tagore
The Happy Prince - Oscar Wilde
The Romance of a Busy Broker - O. Henry
The Interpreter of Maladies - Jhumpa Lahiri

List 2
The Necklace - Guy De Maupassant
The Gift of the Maggi - O.Henry
The Last Leaf - O. Henry
Bartlleby, The Scriwener - Herman Melvile
The Fly - Katherine Mensfield
The Dead - James Joyse
The Yellow Wallpaper -Charllotte Gillman
The Monkey's Paw - W.W. Jacob
The Three Question - Leo Tolstoy
The Overcoat - Nikolai Gogoi
Menseteung - Alice Monroe
The Postmaster - Ravindranath Tagore
The Happy Prince - Oscar Wild
The Romance of a busy broker - O. Henri
The Interpreter of Malladies - Jhumpa Lahir

Q.36 What is the next digit in this series?

2 5 7 6 1 3 4 1 7 9 2 6 8 3 ?

Q.37 A car travels from rest to a speed of 25 meters per second (m/s) in 6 seconds. What is the acceleration of the car? Please provide the value without units.

Q.38 You are aware of the Golden Ratio. Please represent it as a percentage.

Q.39 A working circular wall clock hanging in the drawing room is 20 cm in diameter. The pressure cooker in the kitchen blows its first whistle in 45 seconds and the second whistle in 60 seconds. What is the area covered by the 'seconds' hand fright from the time the pressure cooker was put on the gas till the second whistle started?

Data: Please present the value only. The unit is not needed.
Assume π = 3.14

Q.40 Two rats named Ratui and Satui, blessed with the art of sculpting while eating the cheese were given a task by their mother Matui.

Ratui had to eat and carve the largest possible cube out of a perfectly spherical ball of cheese with a diameter of 4 cm.

Satui had to eat and carve out the largest possible sphere from a 4 cm cube of cheese.

Find out the difference between the amount of cheese Ratui and Satui ate at the end of this artistic task. Assume the density of the cheese is 1.5 gm/cc

End of Section B

Section C - MSQ

Section C (75 marks) contains a total of **15 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 correct choices and NO wrong choices are selected for that question. Each correct answer will receive **5 marks.** The questions not attempted or answered wrongly will be given zero marks.

Questions from 41 to 55 belong to this section.

Q.41 A biomedical implant requires a material with high strength, low density, and biocompatibility. Which materials meet these criteria?

a) Titanium alloys
b) Stainless steel
c) Aluminum alloys
d) Ceramic composites
e) Polycarbonate

Q.42 A gear transmission system requires a 5:1 ratio. Which design considerations ensure efficient power transmission?

a) Gear tooth profile
b) Material selection
c) Bearing selection
d) Shaft alignment
e) Lubrication

Q.43 A product's lifecycle assessment aims to minimize environmental impact. Which design strategies contribute to sustainability?

a) Material recycling
b) Energy-efficient manufacturing
c) Biodegradable materials
d) Design for disassembly
e) Remanufacturing

Q.44 Which is/are the coffee/s not normally served in a cafe?

a) Cortado
b) Dalgona
c) Robusta
d) Arabiata
e) Frappe

Q.45 Which ethical considerations guide designers in decision-making?

a) User-centered design
b) Social responsibility
c) Environmental sustainability
d) Cultural sensitivity
e) Economic viability

Q.46 Which IP protections safeguard design assets?

a) Patents
b) Trademarks
c) Copyrights
d) Trade secrets
e) Industrial design rights

Q. 47 If you are designing a mobile phone for the aged, which of the following aspects will make the most impact on a meaningful product?

a) Metallic finish of the mobile
b) Size and weight of the font appearing on the screen
c) Appropriate shape and size of the device
d) Easy access to switches
e) Suitable material for anti-slip gripping

Q. 48 While cutting a wooden plank for model making which of the following care must be taken?

a) Cut the wood against the grain
b) Cut the wood along with the grain
c) Use an electric power saw
d) Check the sharpness of the power saw blade
e) Use a mask to filter boiling sawdust

Q.49 What would be the positive consequences if the proportion of Oxygen and Nitrogen is reversed in the earth's atmosphere.

a) Increased energy production due to more efficient combustion from the fossil fuels
b) Enhanced plant growth due to better respiration
c) Improved decomposition due to accelerated breakdown of organic matter
d) More efficient fire

e) We will not need oxygen cylinders in the hospitals

Q.50 If gravity were suddenly halved on Earth, the consequences would be far-reaching and multifaceted. What would be potentially negative consequences?

a) With reduced gravity, the atmosphere might slowly drift into space
b) With reduced gravity, people would weigh less
c) The reduced gravity could enable new modes of transportation
d) The reduced gravity could affect the Earth's rotation, potentially leading to longer days
e) We will all levitate

Q.51 The role of water in a washing machine is to

a) loosen dirt
b) rinse clothes
c) work as a vehicle for the detergents
d) make the clothes tumble easily
e) keep the clothes hydrated

Q.52 What are the potential benefits of conducting user research?

a) Improved user satisfaction
b) Reduced production costs
c) Increased sales
d) Enhanced design team's creativity
e) Better product usability

Q.53 What are the characteristics of user-centered design?

a) Focus on aesthetics
b) Emphasis on user needs
c) Prioritization of technology
d) Consideration for accessibility
e) Iterative design process

Q.54 Tangram - a Chinese puzzle has the following parts

a) Two pairs of Right-angled Triangles
b) One Square
c) One unique size Triangle
d) One Rhombus and one parallelogram
e) Two equal Squares

Q.55. Look at the abstract figure below from different points of view and select potentially correct option/s.

a) A cluster of juxtaposed black geometric shapes
b) Clues are in the negative space
c) Need to rotate it anticlockwise to make some sense
d) FLYWIN
e) WINFLY