

[Duration: 3Hours]

[Total Marks: 80]

- Note:** 1. Question 1 is compulsory
2. Answer any three out of remaining questions
3. Assume suitable data where required

Q1 Solve any 4

- a) Explain user's conceptual cognition **5**
- b) Explain Usability Testing Process **5**
- c) Demonstrate the benefits of virtual reality **5**
- d) Define the Interface to the Virtual World-Input & output- Visual, Aural and Haptic Displays **5**
- e) What Is An Interactive Digital Prototype **5**

Q2

- a) What are some popular UX testing methods and techniques? **10**
- b) Discuss the various key Elements of Virtual Reality Experience **10**

Q3

- a) Explain 5 visual-design principles that impact UX **10**
- b) What is Aural Representation and Haptic Representation in VR **10**

Q4

- a) Explain the Information Design and Data Visualization **10**
- b) Why do UI/UX designers use Wireframes? What are the different types of wireframes? **10**

Q5

- a) Discuss in detail, why Understanding the Business Requirements/Goals is important. **10**
- b) Consider a Healthcare Information Portal: In the context of a healthcare information portal, what methods and tools would you use to gather user feedback and identify usability issues? How would you prioritize these issues for improvement? **10**

Q6

- Write a short note on **20**
 - a) The benefits of creating a usability test plan
 - b) mental models
 - c) Prototyping and its types
 - d) Applications of Virtual Reality
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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)**

Class: BE

Subject Teacher: Prof. Kanchan Wankhede

Sem: VII

Subject: UED with VR(CSDO7021)

Module 1: Introduction

1. Explain user interface design with example.
2. Explain cognitive process in user interface design.
3. Explain core elements of user experience process.
4. Describe user experience and user Interface design with example.
5. Explain how Interface design create impacts on commercial sites. Explain with example
6. Explain how different UX elements works together to create an intuitive user experience.

Module 2: The UX Design Process – Understanding Users & Structure

1. Describe the visual design Principles in UX design process
2. Describe the concept of prototyping and various techniques that can be used for prototyping.
3. Describe how mental models impact the usability of digital interfaces.
4. Explain Usability testing with its type in UX design process.
5. Illustrate Information Design and Data Visualization in Interaction design and how they contribute to creating effective user experiences.
6. Describe the concept of prototyping and various techniques that can be used for prototyping.
7. Explain how the principles of screen design and layouts contribute to creating an effective user interface.
8. Short Note on:
 - a. Understanding the Business Requirements and goals
 - b. User research
 - c. UI Elements and Widgets

Module 3: UX Design Process: Prototype and Test

1. Design a comprehensive prototype for an online music store. Justify your design choices with detailed explanations.
2. Develop usability testing plan for a shopping web site. Explain how your plan will effectively identify usability issues and improve the overall user experience.
3. Construct testing scenario for ordering food with Zomato to conduct usability testing.
4. Explain the importance of planning usability tests in the UX design process.
5. Explain various prototyping tools in details.
6. Short note on: conducting Usability Test

Module 4: UX Design Process: Iterate/ Improve and Deliver

1. Determine how you would apply a usability test to evaluate a product's design.
2. Utilize your understanding of feedback to enhance the user experience in a product or service.



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3. Illustrate how effective communication strategies with the implementation team can lead to successful project outcomes.

Module 5: Introduction to Virtual Reality

1. Explain how vision and sound can be used to enhance the virtual reality experience?
2. Describe the role of visual representation in virtual reality
3. Describe Virtual reality and explain the key elements of Virtual reality experience
4. Explain the various applications of virtual reality across different sectors.
5. Explain the Visual and Haptic display in detailed.
6. Explain various properties of Visual Display in virtual reality system.
7. Explain how aural and haptic displays enhance user interaction in a virtual reality system.
8. Explain various logistic properties of Visual Display in virtual reality system.
9. Explain various Types of Visual display.
10. Explain various properties of Aural and Haptic display.
11. Short note on:
 - a. Degrees of Freedom (DOF)
 - b. Aural Representation in VR
 - c. Haptic Representation in VR
 - d. Interface to the Virtual World-Input
 - e. Interface to the Virtual World-output

Module 6: Applying Virtual Reality

1. Illustrate a proposal for using virtual reality in a non-traditional journalism field to enhance storytelling.
2. Illustrate how the framework for developing a VR application can be effectively applied.
3. Determine how different forms in virtual reality can be applied to enhance user experiences.
4. Illustrate techniques to develop a visual style guide that enhances immersion in your VR environment.
5. Determine how different forms in virtual reality can be applied to enhance user experiences.
6. Determine how different genre in virtual reality can be applied to enhance user experiences.
7. Explain Benefits of VR
8. Short Note on: Recent trends in virtual reality application development

[3 Hours]

[Total Marks: 80]

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Q1

- | | |
|---|---|
| a) Explain visual design principles? | 5 |
| b) Explain user interface design? | 5 |
| c) What is cognition ?Explain cognitive processes? | 5 |
| d) Give differences between User experience and User Interface? | 5 |

Q2

- | | |
|--|----|
| a) Explain core elements of User Experience ? | 10 |
| b) Sketch a wireframe for an online music store? | 10 |

Q3

- | | |
|---|----|
| a) Explain Usability Testing with its types? | 10 |
| b) Describe the concept of prototyping and various techniques that can be used for prototyping? | 10 |

Q4

- | | |
|--|----|
| a) Give the importance of feedback in improving user experience? | 10 |
| b) Explain how vision and sound can be used to enhance the virtual reality experience? | 10 |

Q5

- | | |
|--|----|
| a) Write a short note on Virtual Reality | 10 |
| b) Explain Visual representation in VR | 10 |

Q6

- | | |
|--|----|
| a) Create a proposal for the use of virtual reality in a journalism field that has not traditionally embraced VR technology. | 10 |
| b) Construct testing scenarios for ordering food with Zomato to conduct usability testing. | 10 |