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| **P.V.P SIDDHARTHA INSTITUTE OF TECHNOLOGY** | | |
| **BRANCH : Computer Science & Engineering** | | **REGULATION : PVP20** |
| **Course: B.Tech** | **SUBJECT : DATA VISUALIZATION-Honors** | |
| **SubjectCode:20CS6621** | | **Year and Semester: III-II** |
| **QUESTION BANK** | | |

**UNIT -I**

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| **Q. NO.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| 1 | 1. Illustrate the schematic diagram of the visualization process. 2. Explain the forms of data- data values and data structures | 1 | 2 | 14 |
| 2 | a)How Gibson Affordance theory is useful in Visualization?  b)Explain the limitations of Gibson Affordance theory | 1 | 2 | 14 |
| 3 | Develop a model with different stages of perceptual processing | 1 | 3 | 14 |
| 4 | a)How entities are related to data in real world  b)Illustrate the types of relationships | 1 | 3 | 14 |
| 5 | Develop a model a conceptual framework for information processing model of human visual perception | 1 | 3 | 14 |
| 6 | 1. Outline the advantages of visualization 2. Explain the applications of visualization | 1 | 2 | 14 |
| 7 | a) For given image recorded by echo sounder system illustrate the benefits of visualization.  b) In what way visualization is applicable to the real world data | 1 | 2 | 14 |
| 8 | a)Explain the quality of attributes for entities or relationships  b) Discuss the operations on entities and relationships | 1 | 2 | 14 |
| 9 | With a neat sketch illustrate the three-stage model of human visual information processing. | 1 | 2 | 14 |
| 10 | Discuss the schematic diagram of the visualization process | 1 | 2 | 14 |

**UNIT-2**

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| **Q. NO.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| 1 | Illustrate Functional view on the visualization pipeline. | 2 | 3 | 14 |
| 2 | 1. Apply conceptual perspective on visualization pipeline. 2. What goals are included to design effective colour map? | 1 | 2 | 14 |
| 3 | a) Describe visual dataflow programming  b) Explain direct and inverse mapping in the visualization process. | 1 | 2 | 14 |
| 4 | a) How to apply different colour maps for visualizing the objects  b) Apply visualization pipeline on network of objects | 2 | 2 | 14 |
| 5 | Illustrate the conceptual framework on the visualization pipeline with a neat diagram | 2 | 3 | 14 |
| 6 | a)Apply the dataflow design on visualization pipeline in implementation perspective  b)how to classify the visualization algorithms | 2 | 3 | 14 |
| 7 | a)How contouring is utilised in visualization process  b)Apply contour properties on scalar data | 2 | 3 | 14 |
| 8 | a)Illustrate Height plot variations for the dataset  b) Apply (b–d) Enridged height-plot to display scalar values of the dataset | 2 | 3 | 14 |
| 9 | Analyze the variations for designing the effective colour maps | 3 | 4 | 14 |
| 10 | Implement the colour mapping for scalar visualisation with various colour maps. | 3 | 4 | 14 |

**UNIT-3**

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| **Q. NO.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| 1 | 1. Make use of vector glyphs technique for visualizing vector fields and its variations 2. Choose an appropriate vector glyphs for better visualization | 2 | 3 | 14 |
| 2 | 1. Which methods are used to construct the objects from scattered points? 2. In what way color coding is applied on 2D surfaces | 2 | 3 | 14 |
| 3 | 1. Illustrate the variants about vector glyphs in 2D 2. How color coding is performed on 3D surfaces | 2 | 3 | 14 |
| 4 | 1. How cutting method is utilised as domain modeling technique 2. Illustrate displacement plot in a 3D vector field surface with an example | 1 | 3 | 14 |
| 5 | 1. How line integral convolution is applied for texture based vector visualization 2. In what way color coding methods are utilised on 2D surfaces | 2 | 3 | 14 |
| 6 | How to make use of variants of the cutting operation: extracting a brick, slicing, cutting with an implicit function, and generalized cutting | 2 | 3 | 14 |
| 7 | Compare and contrast the selection methods to extract the data from source dataset | 3 | 4 | 14 |
| 8 | 1. How Triangulation methods are utilised for constructing grids from scattered point 2. Distinguish Delaunay triangulation and Voronoi diagrams in grid construction | 3 | 4 | 14 |
| 9 | Analyse the variations of Delaunay triangulation method to construct grid from scattered points | 3 | 4 | 14 |
| 10 | Analyse the variants vector glyphs are used for vector visualization | 3 | 4 | 14 |

**UNIT-4**

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| **Q. NO.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| 1 | 1. How to extract data from any given color image? 2. How data is represented from a monochrome image | 2 | 2 | 14 |
| 2 | 1. In what way advanced segmentation techniques are utilised Shape analysis 2. How image processing is related to Visualization pipeline process | 2 | 3 | 14 |
| 3 | 1. How basic segmentation is related to shape analysis of objects 2. In what way transfer functions are utilized for image enhancement operation | 2 | 3 | 14 |
| 4 | 1. Describe the normalized cuts technique for segmentation in shape analysis 2. How luminance based segmentation is applied in shape analysis | 1 | 2 | 14 |
| 5 | 1. How image-processing operations can be applied at earlier stages of the visualization pipeline 2. How to make use of normalized cuts in image segmentation process | 2 | 3 | 14 |
| 6 | Distinguish image forecasting transform and normalized cuts methods for image segmentation. | 3 | 4 | 14 |
| 7 | Implement the connected components detection from an image dataset. | 3 | 4 | 14 |
| 8 | 1. How operations in shape analysis extracts the shapes from a given input image using Histogram-based image thresholding method. 2. How to make use of image foresting transform method | 2 | 3 | 14 |
| 9 | 1. Make of use snakes and Image foresting transform methods for segmentation of image for shape representation 2. Illustrate the techniques in advanced segmentation of shape analysis | 2 | 3 | 14 |
| 10 | Distinguish the segmentation methods like mean shift, normalized cuts and image foresting transform | 3 | 4 | 14 |

**UNIT-5**

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| **Q. NO.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| 1 | 1. Apply the methods to the users in understanding all that abstract data? 2. In what way printing contents is used to visualize the table data | 4 | 3 | 14 |
| 2 | 1. Describe the techniques in tree visualization 2. Explain the design issues of table visualization | 1 | 2 | 14 |
| 3 | 1. Make use of different techniques for table visualization of stock exchange data 2. In what way mapping values enhances the table visualization | 4 | 3 | 14 |
| 4 | 1. How dimensionality reduction is applied on multivariate data 2. Identify the sampling issues in text-based table visualization | 2 | 3 | 14 |
| 5 | 1. Illustrate with an example to visualize the table data 2. Identify the techniques in content based visualization | 4 | 3 | 14 |
| 6 | Apply tree visualization technique on File hierarchy of the FFmpeg software distribution | 2 | 3 | 14 |
| 7 | Idntify the issues in using Parallel Coordinate Plots for analyzing the distribution and correlation of positions of a set of K-dimensional points | 4 | 3 | 14 |
| 8 | Apply various methods of Content-Based Visualization for Text Visualization | 4 | 3 | 14 |
| 9 | How to make use of techniques to visualize software source code | 2 | 3 | 14 |
| 10 | Differentiate the methods involved in visualizing the text document. | 4 | 3 | 14 |