

## School of Computer Science and Engineering

Winter Semester 2023-24

Continuous Assessment Test – I

SLOT: A1+TA1

Programme Name & Branch : M.Tech (Integrated) – MIC/ MID

Course Name & Code : CSI3005 – Advanced Data Visualization Techniques

Class Number (s) : VL2023240502470, VL2023240502495

Faculty Name (s) : Prof. MEENAKSHI S P, Prof. Prakash M

Exam Duration: 90 Min.

Maximum Marks: 50

### General instruction(s):

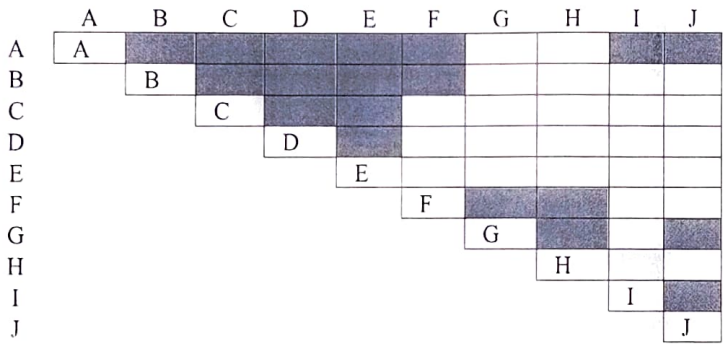
Answer all Questions

- | Q. No. | Question   | Max Marks |
|--------|--|-----------|
| 1✓     | Consider a BigMart sales dataset consists of 2013 sales data for 1559 products across 10 different outlets in different cities. The goal of the BigMart sales prediction is to build a model to predict the sales of each of 1559 products for the following year in each of the 10 different BigMart outlets. The BigMart sales dataset also consists of certain attributes for each product and store. For the identified situations, associate appropriate task, dataset and data type abstraction with justifications to increasing their overall sales. | 10        |
| 2.     | The cell edge end point values of 10x10 grid is given below<br>55 55 55 55 55 55 55 55 55 55<br>51 50 45 38 36 36 38 40 42 47 50<br>51 49 30 20 29 31 26 30 33 40 50<br>51 42 25 15 28 25 21 20 23 27 50<br>51 32 19 23 26 21 16 10 12 24 50<br>51 32 30 33 25 22 12 02 09 21 50<br>51 36 35 34 26 18 15 14 13 25 50<br>51 39 36 35 30 27 20 20 23 29 50<br>51 45 39 36 35 33 30 29 30 48 50<br>51 50 50 50 50 50 50 50 50 50<br>Construct an iosline for the above 2D dataset for V=5, V=11, V=18, V=22, V=28 and V=37.                                     | 10        |
| 3.     | For the given train network data between the station and the train type as Super Fast/ Express is given in the table. Design visual idioms using force directed placement method and vertical top down placement method. Apply color and other channels to encode the distance and train type attributes in the idioms. Distinguish longest and shortest paths through appropriate visual encodings.   | 10        |

Source	Destination	Distance	Type
CAPE	TVC	80	SF
TVC	CBE	425	SF
CBE	KPD	400	SF
KPD	CTO	35	EXP
KPD	BZA	450	SF

BZA	GNT	35	EXP
BZA	TEL	40	EXP
BZA	NGP	700	SF
NGP	SBC	1092	SF
SBC	MAQ	370	SF
CBE	TVC	425	SF
KPD	CBE	400	SF
BZA	KPD	450	SF
NGP	BZA	700	SF
SBC	NGP	1092	SF
CTO	TPTY	70	EXP
CTO	MLP	95	EXP
MAQ	UD	50	EXP
MAQ	CMGR	150	EXP
CAPE	SBC	370	SF
TVC	CAPE	80	SF

4✓ The network adjacency matrix for a specified network is given below, visual the network idioms with appropriate color. Identify the various structures of the network visible in the visual idioms and explain. 10



5. The *airquality* dataset with the dimension 153X6 is shown below 10

	Ozone	Solar.R	Wind	Temp	Month	Day
1	41	190	7.4	67	5	1
2	36	118	8.0	72	5	2
3	12	149	12.6	74	5	3
...	...	...	...	...	...	...
151	NA	191	14.3	75	9	28
152	18	131	8.0	76	9	29
153	20	223	11.5	68	9	30

Using R/Python code with proper visual idioms display the gird chart with 2X3 consists of scatter plot, line plot with point and line, vertical bar plot, horizontal bar plot, box plot and 3D Pie chart.