

**VIT**Vellore Institute of Technology
(Deemed to be University) under section 3 of U.T. Act, 1976**School of Computer Science and Engineering****Winter Semester 2023-24****Continuous Assessment Test – II****SLOT : A1+TA1****Programme Name & Branch:** M.Tech CSE Integrated**Course Name & Code:** Advanced Data Visualization Techniques, CSI3005**Class Number (s):** VL2023240502495, VL2023240502470**Faculty Name (s):** Prof. Prakash M, Prof. Meenakshi S P**Exam Duration:** 90 Min.**Maximum Marks:** 50

Q. No	Questions
1.	<p>Consider a wellness center dataset that contains attributes like CityName, CityCode, WellnessCenterCode, WellnesscenterName, WellnessCenterAddress, ContactNumber, NumberofDoctors, Type (Allopathic/Unani/homeopathic/Ayurvedhic), NumberofBeds. Write a suitable R/python function for the following queries</p> <ol style="list-style-type: none">Display the CityName and CityCode which has NumberofDoctors >3 and Type = Allopathic. (2.5)Filter the Wellness centers that have NumberofBeds > 10 and group it by CityCode and display the result for each City with Numberof Beds and NumberofDoctors . (2.5)Find the rows with no missing value for Contact Number. (2.5)Filter the rows where WellnessCenterAddress and ContactNumber are available. Group the data by CityCode and Type. Finally, calculate the total NumberofDoctors employed for each group. (2.5)
2.	<p>In tableau, write step by step procedure to visualize the commodity monthly price data for the years 2020-2023 to the scenarios given below.</p> <ol style="list-style-type: none">Connect to a commodity_priceindex excelfile from your system and load to tableau. (2.5 Marks)Describe how the datatypes are assigned and categorized for the attributes commodityname, commoditycode, commodityweight, price012020, price022020...price112023 price122023 in tableau (2.5 Marks)To Compare the commodities with prices >200 for January 2021, January 2022 and January 2023, choose two appropriate visualization techniques (2.5 Marks)Show the attributes considered for rows and columns in each of the chosen techniques with appropriate marks and filters (2.5 Marks)
3.	<ol style="list-style-type: none">Compare and contrast area mark based geospatial data visualization techniques (4)Write R/python code to visualize population of metropolitan cities and states of India using appropriate geospatial visualization techniques. Include comments to clarify the usage of the statements (6).

4.

India/State/ UT	Primary (1 to 5) - Boys	Primary (1 to 5) - Girls	Elementary (1 to 8) - Boys	Elementary (1 to 8) - Girls	Secondary (1 to 10) - Boys	Secondary (1 to 10) - Girls	Higher Secondary (1 to 12) - Boys	Higher Secondary (1 to 12) - Girls
Andhra Pradesh	100	100	83	83.7	43.5	43.3	27.2	29
Arunachal Pradesh	58.6	62.3	42	46.2	35.4	40.2	18.7	21.8
Assam	78.3	80.7	61	69.3	58.6	69.6	29.6	30.4
Bihar	100	100	73	78.2	41.3	44.9	21.7	25.3
Chandigarh	100	100	100	100	100	100	100	100
Chhattisgarh	91.9	92.7	87	89	63.9	72.2	35.8	45.6
Delhi	100	100	100	100	100	100	77.8	84.9
Goa	94.6	96.2	96	94.9	100	96.9	70	78.7
Gujarat	95.4	95.4	92	89.9	70.1	61.2	37.6	37.3
Haryana	100	100	98	95.9	100	98.3	74.3	82.8

School Retention rates of boys and girls in different states are given in the above table. Analyse the retention rates in primary, elementary, secondary and higher secondary levels in various states using any four multivariate visualization techniques. Deduce the relationship persists across the variables.

5.

Explore various visual techniques available for summarizing a text document, understanding the sentiments in tweets and finding the topics in a document? Explain briefly with examples and visual presentations.