**Birla Institute of Technology & Science, Pilani**

**Work-Integrated Learning Programmes Division**

**M.Tech (Data Science and Engineering)**

**Mid-Semester Test (EC-2 Regular)**

Course No. : DSECL ZG555

Course Title : DATA VISUALIZATION & INTERPRETATION

Nature of Exam : Open Book

Weightage : 30%

Date of Exam :

No: of Questions : 7

Note**.**

* Start the answer in a new page.
* Cleary mention the assumptions made, if any

**Answer All the Questions**

**(Start every question in a new page)**

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| 1. | Table below shows the highest ranked players of all-time in the MRF Tyres -ICC test batting rankings.   |  |  |  | | --- | --- | --- | | Player Name | 2018 December 31  Rating | 2017 December 31  Rating | | Kane Williamson | 897 | 855 | | Virat Kohli | 931 | 893 | | Steve Smith | 883 | 947 | | David Warner | 780 | 831 | | Cheteshwar Pujara | 834 | 873 | | Joe Root | 807 | 855 |   Provide an effective visual showing a before and after view / comparison of two different points in time. Emphasize the changes. [2]  Which display medium is used? Why?[1] | 2+1=3M |
| 2. | Identify atleast 4 Gestalt principles in action. Explain | 1\*4=4M |
| 3. | Which of the below visual depicts a very effective use of pre-attentive attribute of color. Explain.   |  |  | | --- | --- | | Figure 1 | Figure 2 | | 1+1=2M |
| 4. | What is your interpretation about Women Empowerment from the below visual?  Identify the design mistake[1M],give the mathematical explanation[2M] and redesign the chart[1M]. | 1+2+1=4M |
| 5. | The following visual gives the revenues of 3 resorts for FY-1993,1994 and 1995.Try to interpret the data and redesign the visual, **without information loss**, for the below scenarios, with appropriate choice of display medium/s to make it more effective. **Present only the final version of the graph/s and list down the proposed changes and the reasons**.  Scenario 1: if audience wants to compare the revenue of all three resorts in a given year[3M].  Scenario 2: if audience wants to see how revenue has changed through time for the resorts[3M]. | 3+3=6M |
| 6. | Your data set contains the following attributes and values.  ***Market: Asia, Europe, South America, North America***  ***Sales:$2,000,000,$4,500,000,$5,500,000,$6,000,000***  Which analytic feature of Tableau, would you use to achieve the following?[1M] Explain.[1M]  Also give a representative visual.[To the scale:1cm=$1,000,000] [1M]   1. To shade an area behind the marks in the view between average and maximum computed sales values on the axis. 2. A gradient of shading to indicate the distribution of values along the axis-Lower Quartile, Median, Upper Quartile etc. | 3\*2=6M |
| 7. | The above chart shows a department’s staffing levels, its headcount, at the end of each of the first three quarters of the year. It goes from 24 at the end of Q1, to 20 at the end of Q2, and is still 20 at the end of Q3.This visualization only shows headcount at the end of every quarter. In fact, you might think that the four-person drop in headcount from Q1 to Q2 was the big story here, and that staffing numbers had stabilized from Q2 to Q3 .In reality, however, those four people, who quit right at the end of Q1, were just the tip of the iceberg. In the first week of Q3, 15 more people from the department quit. Only a heroic effort on the part of recruitment, senior management, and other department heads managed to bring the headcount back up from 5 to 20—with a combination of new hires, transfers, and reorganization—in a mere 3 months.  **Come up with an alternate visual, in order to convey a fuller, and more accurate, picture of the situation to your audience. Explain.**  The data table below is a more complete view of the department’s staffing levels. For each quarter, it shows not only the headcount at the end of the quarter, but also how many people came into, left, and stayed in the department over the course of each period.   |  |  |  |  | | --- | --- | --- | --- | | **Employee Status** | **Q1** | **Q2** | **Q3** | | Retained from prior Quarter | 22 | 17 | 5 | | Transfers Out | 1 | 1 | 0 | | Resignations | 1 | 5 | 15 | | Involuntary Terminations | 0 | 1 | 0 | | New Hires | 1 | 2 | 5 | | Re-Hires | 0 | 0 | 7 | | Transfers In | 1 | 1 | 3 | | **Headcount at end of quarter** | **24** | **20** | **20** | | 5M |