**Internal Assignment**

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| **SESSION** | **NOV 2024** |
| **PROGRAM** | **MASTER of Computer application (MCA)** |
| **SEMESTER** | **1** |
| **course CODE & NAME** | **DCA6112 – Data Visualization** |
| **CREDITS** | **04** |
| **nUMBER OF ASSIGNMENTS & Marks** | **02**  **30 marks for each** |

***Please read the below instructions carefully before proceeding further:***

* Learners are instructed to download the IA Question Paper, prepare the answers (Soft Copy), and submit them through Learning Management System (LMS) Portal
* **The last IA assignment submission date (Set-1 & Set-2 in a single file) is reflected in LMS only. This is the last date, and no further extension will be considered.**
* **Assignment submissions are accepted only in .pdf format.**
* Assignments must be **typed** and **formatted** as per the following specifications:
  + Page Margin – 1 inch on all sides
  + Page Orientation – Portrait
  + Page Size – A4
  + Font Family - Times New Roman
  + Font size - 12
  + Alignment - Justified.
* The total page limit shall not exceed 12 pages.
* **Answers for 10-mark questions should be approximately 400-500 words and not more than 200-250 words for 5-mark questions.**
* The average of both assignments’ marks scored by the learner will be considered Internal Assessment Marks.
* Only ONE submission is allowed per assignment.
* Please restrict the assignment document size to <2 MB. Avoid inserting images of very high resolution into the document to remain within the size limit. The assignment response document should NOT contain color images or highlighting of text content.
* Upon successfully submitting IA in LMS, learners can verify the document submitted against each course using the preview tab. If the file submitted has been corrupted or the wrong document submitted, it will not be considered for evaluation.
* If the learner resubmits the assignment, it is permissible only on or before the cut-off date, and the last submission will be considered for evaluation purposes.
* **Content that has been directly copied from the Internet/SLM and Assignments that have been copied and shared among students will be automatically rejected and disqualified.**

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| **Set-I** | | | | |
| **Q. No** | **Questions** | **Marks** | **Total Marks** |
| **1.** | A manufacturing company wants to monitor the quality of its products by analyzing defect rates. Discuss how you would use Excel to create Box and Whisker Plots to identify outliers and variability in defect rates. The company also wants to implement a Gantt Chart to manage production schedules. Explain how to create and interpret this chart in Excel for effective project management. | **5+5** | **10** |
| **2.** | Describe the steps to create a pie chart in Excel, and discuss when it is most appropriate to use this chart type. Explain how to create a bar chart in Excel and give an example of a scenario where a bar chart is the most effective. | **5+5** | **10** |
| **3.** | A retail store wants to analyze the sales performance of different product categories over the past year. Using Excel, recommend suitable chart types to visualize this data and justify your choices. The sales manager wants to highlight seasonal trends in product sales. Design a visualization strategy using Excel to present these trends and explain your approach. | **5+5** | **10** |
| **Set-II** | | | | |
| **Q. No** | **Questions** | **Marks** | **Total Marks** |
| **4.** | A company has collected customer feedback in text format. Discuss how you would use Python to generate a Word Cloud and frequency distribution to analyze common themes in the feedback. Propose a method for cleaning and preparing this text data before visualization, explaining the steps you would take to ensure the data is ready for analysis. | **5+5** | **10** |
| **5.** | Discuss techniques for dealing with missing data in Python and explain why data cleaning is crucial for accurate visualizations.  Explain how data transformation and applying filters can enhance data visualization in Python. | **5+5** | **10** |
| **6.** | An e-commerce platform wants to visualize sales performance across different regions of the country. Explain how you would use Excel to create a Heat Map and discuss what insights this visualization might reveal. The company also wants to use Python for a more dynamic visualization. Suggest a suitable Python library for this task and explain the advantages of using Python over Excel for this type of analysis. | **5+5** | **10** |