Course Work Project Description and Rubric

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Semester | 202420 | | Division | | CIS |
| Assessment title in Syllabus | Project | | Program | | IT and IS |
| 1 |  | |  | |  |
| Course Code | CIS 2423 | | | | |
| Course Title | Programming for Data Analytics | | | | |
| CLOs | All CLOs | | Accreditation Body | | CAA & CIPS |
| Course Instructor |  | | CRN | |  |
| Assessment Weight | 40% | | Submission Date | | Week 14 |
| For Group Work submissions an additional individual assessment will be conducted.  Grades for the students in one group will vary based on the individual performance in the additional assessment. | | | | | |
|  | | | | | |
| Student Declaration:  Academic Integrity Statement  In accordance with the HCT Academic Integrity Policy  • Students are required to refrain from all forms of academic integrity breaches as defined and explained by HCT.  • A student found guilty of having committed acts of academic integrity breach(es) will be subject to the relevant sanctions as outlined by HCT.  إفادة النزاهة الأكاديمية  وفقًا لسياسة كليات التقنية العليا للنزاهة الأكاديمية  • على الطلبة الإلتزام بلوائح وقواعد النزاهة الأكاديمية، كما هو مبيّن وموضح في السياسات والإجراءات الخاصة بكليات التقنية العليا.  • في حالة ارتكاب الطالب أي شكل من أشكال الإخلال بالنزاهة الأكاديمية، سيتعرض الى العقوبات الموضحة في السياسات ذات الصلة.  This assignment is entirely my own work except where I have duly acknowledged other sources in the text and listed those sources at the end of the assignment.  I have not previously submitted this work to the HCT, or any other entity. I understand that I may be orally examined on my submission.  Student (s) Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | |
|  | | | | | |
| Student Name(s): | Hessa Badr Alshehhi | Sara Aeyez Almehairbi | | Alyaziah Khaled AL Mheiri | |
| Student HCT ID(s): | H00459613 | H00498383 | | H00499125 | |

For Examiner’s Use Only

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Group (50%) | | | | | Individual (50%) |  |  |
| CLO | 1 | 2 | 3 | 4 | Report Formatting | Oral Defense | Total | % |
| Marks Allocated | 10 | 10 | 42 | 26 | 12 | 50 | 100 | 40 |
| Marks Obtained |  |  |  |  |  |  |  |  |

# Project Objectives

This is an intensive project-based course. It enables students to perform data analysis using Python programming. Students should select their dataset from a free source and conduct a methodical data analysis using Machine Learning algorithms. The project's primary objectives are:

* Generate a data summary using descriptive analysis
* Create a sample and visualize sample data using graphs/charts and remove the unwanted outliers;
* Investigate the correlation between the variables;
* Perform hypothesis testing if you have any assumptions about your dataset;
* Perform data preprocessing prior to building a data model;
* Create and optimize the regression model for the selected dataset in order to predict the values; and
* Develop and Optimize the classification model for the selected dataset in order to predict the values.
* Analyze the data for patterns or groups based on clustering and optimize the model in order to obtain the desired output.

# Project Description

You are assigned to work on the data analysis for chosen dataset. The list of datasets is available in a Kaggle data source(<https://www.kaggle.com/datasets>). The project carries 25% of your coursework marks. You are required to work in a team of maximum FOUR (4) members. It is important that you need to collaborate in working on the project within your team. The collaboration between the team members will be recorded, tracked, and monitored.

For CLO1, CLO2, and CLO3 – Regression same dataset should be used

If required, then CLO3 – classification and Cluster different dataset can be used.

# Project Tasks/Questions

|  |  |  |
| --- | --- | --- |
| CLO | Deliverable Learning Outcomes | Marks |
| 1 | 1. Define the purpose of data analysis for the chosen dataset   The purpose of analyzing this dataset is to gain insights into customer purchasing behavior and product performance. By examining details such as customer location, gender, tenure, transaction history, and spending patterns (both online and offline), we can better understand how customers interact with the company's products. The dataset also includes information on discounts, coupon usage, and delivery charges, which helps us evaluate the effectiveness of promotions and pricing strategies. Additionally, by identifying which products are frequently purchased and how spending varies across different customer segments, the analysis can support decision-making in marketing, sales, and customer engagement strategies to improve overall business performance. | 2 |
| 1. Identify and Justify the type of programming used for data analysis   Python is used/google Collab  python is widely used for data analysis because it has strong libraries like Pandas for handling data, Matplotlib and Seaborn for visualization, it is also easy to learn and read, making it suitable for both beginners and experts. | 2 |
| 1. Identify the type and purpose of the machine learning algorithm to be implemented for the chosen dataset   Regression  **Purpose:** Predict continuous values such as Online\_Spend or Discount\_pct. | 3 |
| 1. Identify and Justify the independent and dependent variables for the chosen dataset.   independent variables: Gender, Location, Tenure\_Months, Product\_Category, Quantity, Avg\_Price, Delivery\_Charges, GST, Offline\_Spend, Coupon\_Status, Discount\_pct, Month, Online\_Spend  **Dependent Variable (Target):**  Online\_Spend: This is the value we want to predict, so it's the **dependent variable**. | 3 |
| Total | 10 |
| 2 | 1. Justify why you want to perform the descriptive analysis for the chosen dataset.   Descriptive analysis helps to understand how the values are spread out in the dataset. It shows key details like the average, middle value, most frequent value, the range between the highest and lowest numbers, and how much the values vary. This makes it easier to spot patterns and differences in the data, which is useful for understanding the overall picture before doing more advanced analysis. | 1 |
| 1. Create a script to develop a Python function for descriptive statistics. The input for the function should be the sample and the field to perform the descriptive statistics.     The descriptive statistics table provides an overview of six numerical variables: **Quantity**, Avg\_Price, Delivery\_Charges, Offline\_Spend, Online\_Spend, and Discount\_pct from the dataset. Each column includes key statistical metrics such as count, mean, standard deviation, minimum, maximum, and quartiles (25%, 50%, 75%). i dropped empty columns and empty rows and filled null values with 0 so we don’t have false numbers | 1 |
| 1. Create a program to random sampling of size 150 and find the descriptive statistics for the dependent variable from the sample [Apply the descriptive function which you created].       The displayed data showcases a random sample of 150 customer transactions where the Online\_Spend exceeds 1000.attributes include customer demographics (Gender, Location, Tenure), transaction details ( Product Category, Coupon Code, Discount Percentage), and spending behavior both offline and online.  The descriptive statistics of the 150 rows show that the average Online Spend is approximately 1955.31, with a median of 1941.76 and a mode of 641.12, indicating slight skewness. A standard deviation of 840.04 and an IQR of 1251.61 highlight significant variability in spending. Online Spend ranges from 320.25 to a maximum of 4072.03 | 1 |
| 1. Create a script for systematic sampling by giving certain conditions and finding the desc stat for the dependent variable from the sample [Apply the descriptive function which you created].   We used a **systematic sample** of 150 customer transactions, all with online spending over $1000. The average spend was $1891.38, and the middle value (median) was $1827.02, showing the data is fairly balanced. The most common spend amount (mode) was much higher at $2819.58, meaning some customers spent a lot more than others. A wide range of $4236.68, a standard deviation of $806.31, and an IQR of $1172.34 show that spending amounts vary a lot between customers. | 1 |
| 1. Create a detailed descriptive statistics report about the dependent variable of the chosen dataset:   n this part, we studied the Online\_Spend variable using basic statistics. We found the average (mean), middle value (median), and checked the minimum and maximum amounts spent online. We also looked at the standard deviation and variance to understand how spread out the spending values are.  Descriptive statistics help us in 3 main ways:   * They give us a quick snapshot of the data. * They show how values are spread, from lowest to highest. * They guide us in choosing the right graphs to use later on.   This step gave us a good understanding of the data before moving on to visualization or modeling. | 1 |
| 1. Visualize the dependent variable by the Graph/Chart of the following using Python Program:    1. Scatter plot    2. Box Plot    3. Histogram    4. Heat Map   Hint: Use Matplot or Ski-learn library  In this part, we visualized the dependent variable Online\_Spend using different types of graphs to better understand the data. We used a scatter plot to show the relationship between Online\_Spend and another variable, a box plot to see the spread and identify the range of spending, a histogram to look at the distribution of spending values, and a heat map to check the correlation between all numerical variables.  These charts helped me understand the data better by showing patterns and how the values are connected. It also made it easier to see if most of the spending was close together or spread out. | 3 |
| 1. Perform the hypothesis test to find the correlation (Pearson and Spearman for numerical variable and chi-square test for categorical variable) between the independent variable and the dependent variable.   Note: If you have more than one independent variable, then chose any one of the independent variables.  In this part, we performed hypothesis tests to check if there is a relationship between one independent variable and the dependent variable (Online\_Spend). We used **Pearson correlation** to check for a linear relationship and **Spearman correlation** to check for a general increasing or decreasing trend. Both results showed a **positive relationship** between **Offline Spend** and **Online Spend**, meaning when Offline Spend goes up, Online Spend usually goes up too.  We also did a **Chi-Square test** to see if there's any relationship between **Gender** and **Coupon Status**, and the result showed **no significant connection** between them.  These tests helped us understand which variables are related to Online\_Spend and whether those relationships are strong or not. | 1 |
| 1. Assess the performance of the dependent variable to know whether the sample is representative of the normal population by a one-sample t-test.   In this part, we wanted to find out if the average Online\_Spend in our data is close to 300. First, we used the Shapiro-Wilk test to check if the data follows a normal distribution. The result gave a very small p-value, which means the data is not normally distributed.  Next, we did a one-sample t-test to compare the average Online\_Spend to 300. The test gave a t-value of 262.6411 and a p-value of 0.0000. Because the p-value is less than 0.05, we rejected the null hypothesis. This means the average Online\_Spend in our data is quite different from 300. | 1 |
| Total | 10 |
| 3 | 1. Build, Train, Develop and Evaluate using Simple Regression for chosen dataset.   The results show that there is a small positive link between discount percentage and online spending. The model found that if there is no discount, people spend about **$1838.81**. For every **1% increase in discount**, spending goes up by about **$2.71**. For example, with a **10% discount**, predicted spending is **$1865.95**; with **15%**, it's **$1879.52**; and with **25%**, it's **$1906.66**. However, the predictions are not always close to the actual spending. For example, the model predicted **$1893.09**, but the real spending was **$2768.28** in one case. This shows that while the model gives a general idea, real spending depends on more than just discounts.      First graph (green dots and black line):  This graph shows the training data (green dots) and the regression line (black).each dot represents a data point with input on the x-axis and online spending on the y-axis. The black line is the model’s prediction.it’s nearly flat, showing that the model doesn’t find a strong relationship between the input and spendings it predicts similar values regardless of the input.  Second graph (blue dots and yellow line):  This is the test data (blue dots) with the model’s predictions shown by the yellow line. Like the training graph, the prediction line is also flat, which confirms that the model gives almost the same prediction for all inputs.    About outliers:  Yes, both graphs have outliers data points that are very far from the rest. For example, some points are way above 4000, while most are between 1000 and 3000. These extreme values could affect the accuracy of the model, especially since the line is flat and can’t adjust to such large changes. | 5 |
| 1. Develop a script to forecast the value of the dependent variable from all the relevant independent variables using Multiple Linear Regression       We built a multiple linear regression model to predict online spending using variables like tenure, quantity, price, delivery charges, offline spend, and discount. The model showed that some factors, like quantity and avg price, increase spending, while higher delivery charges reduce it. the predictions were close to the actual values, meaning the model works well. we also tested how different discount levels affect spending. | 5 |
| 1. Predict the value of the dependent variable from the different classifier such as Logistic Regression, KNN, Naïve-Bayes and Decision Tree. | 17 |
| 1. Evaluate the performance of each model using confusion matrix and accuracy and identify the best fit classifier for the chosen dataset.   We used their confusion matrices to calculate the total number of wrong predictions (False Positives + False Negatives) and checked their accuracy scores.  Below is the result of the performance metrics for each model:   |  |  |  | | --- | --- | --- | | **Model** | **Errors** | **Accuracy** | | **Logistic Regression (LR)** | 7 + 15 = 22 | 52.31% | | **K-Nearest Neighbors (KNN)** | 8 + 10 = 18 | 67.32% | | **Naïve Bayes (NB)** | 0 + 23 = 23 | 3.41% | | **Decision Tree (DT)** | 11 + 10 = 21 | 64.20% |   **The best fit model for our dataset is KNN**, because it had the highest accuracy and the lowest number of errors compared to the other models.  Logistic Regression    KNN    Decision Tree    Naïve-Bayes | 9 |
| 1. Predict the dependent variable by using best-fit classifier.   After testing all the models, we found that the **KNN model** worked the best. So, we used KNN to predict the dependent variable. It was able to make the most correct predictions and gave better results than the other models. That’s why we chose KNN as the best-fit classifier to use for making our final predictions. | 1 |
| 1. Perform the cluster analysis such as K-means and Horizontal for any field from the chosen dataset.       We used **K-means** to group similar customers together based on their spending. It helped us see which customers behave in the same way, like who spends more and who spends less. | 8 |
| 1. Explain the strategy for improving the system after viewing the cluster diagram.   After checking the cluster diagram, we noticed different groups of customers based on their spending behavior. To improve the system, we can treat each group differently. For example, we can offer more promotions to low-spending groups and keep high-spending groups engaged with loyalty rewards. This way, we can focus on what each group needs and improve the overall performance of the system. | 2 |
| Total | 42 |
| 4 | 1. Create a new repo for project in Git Hub | 3 |
|  | 1. Upload all the project files created for CLO1,CLO2 and CLO3 to the Git Hub repo | 4 |
|  | 1. Configure Git with GitHub | 5 |
|  | 1. Clone Git hub repo to Git | 4 |
|  | 1. Pull any file from Git Hub repo to Git | 5 |
|  | 1. Modify the pulled file and push the modified file to Git Hub | 5 |
|  | Total | 26 |

*Please link each question/task to its corresponding CLO’s and assign marks according to the CAP.*

*Please note that a task might address many CLOs.*

# Project Deliverables

Project Report (50%)

1. Deliverable 1: A complete report about the purpose of data analysis, programming language chosen for data analysis, types of machine language algorithm to be analysed and the list of variables chosen for analysis [CLO1]
2. Deliverable 2: A detailed report about the summary of the data, sampling, graphs/charts to analyze the data, relationship between variables, evaluating assumptions using hypothesis testing, predicting the variables using the regression model [CLO 2,3]
3. Deliverable 3: A comprehensive description about the data model created using classification and clustering algorithm of machine learning. It should involve the narrative about the data model is optimize to predict the variables and bow the best fit model has been chosen. [CLO 2,3]
4. Deliverable 4: Complete narration about data versioning using Git. [CLO 4]
5. Written Communication: Complete report with specified format and structure [12 points].

Project Oral (50%)

1. Oral Communication: Each student will be assessed in the form of individual oral defense with PowerPoint presentation. [All CLOs] [10 Marks]
2. Follow-up Questions and Discussion [All CLOs] [30 Marks]
3. [Collaboration] [10 Marks].

Note: For oral presentations, a slide should be dedicated for each student to present their collaboration and lesson learnt. This will allow each student to showcase their individual contributions and reflect on the overall group experience. It also provides a structured format for sharing key takeaways and insights gained from working together.

*Points 1 to 4 are a part of group grading [50%] and points 5,6, 7 and 8 contribute to individual grading.*

# Rubric

*Please note that the Project rubric should reflect the project description and be CAP-compliant. Please feel free to customize the descriptors as per the project requirements and course level.*

## Group Project Rubric [Task-specific RUBRIC]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Absent (F) | Insufficient (1-59%)  (F) | Emerging (60-69%)  (D/D+/C-) | Satisfactory (70-76%)  (C/C+) | Competent (77-86%)  (B-/B/B+) | Mastering (87-100%)  (A-/A) |
| * Group Grading-Critical Thinking: Analysis and Evaluation [45%] | Deliverable 1: understanding of data analytics [CLO1]  (5%) |  | None of the following:   * Purpose of data analysis not mentioned. * Selection of programming language is not referenced. * Type of machine learning algorithm to be analyzed is not defined * Variables for data analysis are not mentioned   . | Some but not all the following:   * Purpose of data analysis mentioned but not clear. * Selection of programming language is referenced. * Required machine learning algorithm to be analyzed is ill-defined [Too many models mentioned] * Variables for data analysis are mentioned without justification | Most but not all the following:   * Purpose of data analysis is clearly mentioned. * Selection of programming language is referenced. * Required machine learning algorithm to be analyzed is defined, but without justification. * Variables for data analysis are mentioned with justification but not clear | All of the following:   * Purpose of data analysis is clearly mentioned. * Sound rationale for choosing the programming language * Required machine learning algorithm to be analyzed is well-defined with appropriate justification. * Variables for data analysis are mentioned with clear justification | All of the following:   * Purpose of data analysis is clearly mentioned with appropriate explanation * Thoroughness of programming language chosen is evident. * Student synthesizes information about machine learning algorithm from multiple disciplines and sources and presents them with clarity. * Variables for data analysis are precisely defined with appropriate justification * Employ outstanding knowledge about the data analysis from different sources |
|  | Deliverable 2: Apply data analysis and visualization techniques [CLO2]  (25%) |  | * No evidence of justification to perform descriptive statistics * Function is not created for descriptive statistics * Sampling techniques are not designed * Exploratory analysis are not performed * Hypothesis tastings are not achieved * Data preprocessing is not devised * Regression models are not functioned * Optimization for regression model is not operated * Best fit model is not enacted | Some but not all the following:   * Evidence of justification to perform descriptive statistics exist but not clear * Function is created for descriptive statistics having major syntactical errors. * Sampling techniques are designed but not appropriate * Exploratory analysis are performed but ill-designed * Hypothesis tastings are achieved with flaw * Evidence for data preprocessing exist but with inappropriate techniques * Regression models are functioned with huge faults * Optimization for regression model is operated with inaccuracies   Best fit model is enacted without justification. | Most but not all the following:   * Evidence of justification to perform descriptive statistics exist with clear elucidation * Function is created for descriptive statistics without flaws. * Sampling techniques are designed with appropriate rationalization * Exploratory analysis are performed with appropriate legends * Hypothesis tastings are achieved appropriate assumption * Evidence for data preprocessing exist but with applicable techniques * Regression models are functioned without mistake * Optimization for regression model is operated with appropriate metrics * Best fit model is enacted appropriate interpretation | All of the following:   * Appropriate description and exploratory analysis provided. * Sound rationale for chosen hypothesis testing * High accuracy obtained for regression model * Rigor is evident. | All of the following:   * Appropriate description and exploratory analysis provided along with exemplary analysis * Sound rationale for chosen hypothesis testing and infer statically in commendable way * Other regression model are handled obtained from different sources * Rigor is evident. |
|  | Deliverable 3: The data model created using classification and clustering algorithm of machine learning [CLO2, CLO3]  (15%) |  | * Incomplete classification models are presented. * No optimization and recommendation are performed for classification model. * No evidence of any cluster analysis * No strategies are produced from cluster model. | Some but not all the following:   * Comprehensive classification models are presented but with significant errors * Thorough optimization and recommendation are performed for classification model but with poor validation * Evidence of cluster analysis exists with poor performance * Strategies are derived from cluster model which are insignificant | Most but not all the following:   * Comprehensive flawless classification models are presented * Thorough optimization and recommendation are performed with appropriate validation for classification model * Evidence of cluster analysis exists with better performance * Strategies are derived from cluster model which are significant but not consistent | All of the following:   * Implemented all classification models * Major validation works demonstrated on optimization and recommendation of classification model * Appropriate cluster analysis was performed and good strategies are postulated and well-documented. | All of the following:   * All classification models are accurate * Perform more classification models from different sources * All cluster models are accurate * Perform more cluster models from different sources * Appropriate interpretation and recommendations are provided |
|  | Deliverable 4: Data Versioning  [CLO 4]  (5%) |  | * No evidence of creating a new repository and uploading project files to Git Hub * Git is not configured with Git Hub * No evidence for cloning Git hub repo to Git * Push and Pull are not performed | Some but not all the following:   * Repository model is created but files are not uploaded to repo * Git is not configured with Git Hub * Evidence of cloning exists with appropriate options * Push and Pull are performed which are insignificant | Most but not all the following:   * Repo are created and project files are uploaded to repo * Git configuration are performed with accordance of Git Hub * Evidence of cloning exists with proper options * Push and Pull are significant but not consistent | All of the following:   * Repo are created and project files are uploaded * Advanced configuration is performed on Git * Many functions related to cloning is performed apart from basic operations * Push and pull with different scenario are mentioned | All of the following:   * Scenario is created and explained about significance of repo creation * Advanced configuration is performed on Git * Different cloning techniques should be elucidated. * Push and pull with different scenario are mentioned * Branching should be exhibited |
| Group Grading:  Report Quality  [5%] |  |  | * Incomplete report with missing most of the deliverable components. * Too many typographical errors. | Some but not all of the following:   * Complete report with required deliverables. * Clear table of contents showing all required sections. * Free from formatting and typographical errors. | Most but not all of the following:   * Complete report with all required format and deliverables. * Some minor formatting and/or typographical errors. * Table of contents presented with some missing information. | All of the following:   * Complete report with required format and deliverables. * Clear table of contents showing all required sections. * Some minor formatting and/or typographical errors. | All of the following:   * Complete report with required format and deliverables. * Clear table of contents showing all required sections. * Free from formatting and typographical errors. |

## Individual Oral Presentation

## Student (1) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student HCT ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Absent | 1-59.49% | 59.5% - 69.49% | 69.5% - 76.49% | 76.5% à86.49% | 86.5% à100% |
| Collaboration (10%) |  | * Does not partake in the task or is so frequently distracted that he/she produces. * Having made no contribution to the group's objective. | * Participates in the task but does not collaborate with others or contribute to the group process. * Participates in discussions. * Expresses own opinion and viewpoints. * Remains dedicated to the subject. * Performs independently specific tasks | * Cooperates with the group process, but does not coordinate contributions with those of others. * Does not interrupt while listening. * Actively seeks the input of others. * Accepts duties that have been assigned. * Complies with the group consensus. * Utilizes the ideas of others | * Coordinates processes and products with those of teammates, but does not resolve significant conflicts. * Actively pays attention to what is being said. * Offers and accepts constructive feedback. * Adapts ideas and/or processes to the needs of colleagues. * Seeks consensus. * Effectively resolves trivial disputes | * Student coordinates collaborative processes and outputs. * Effectively resolves both significant and minor conflicts. * Expresses disagreements in an open and diplomatic manner. * Supports group decisions even if they are not unanimously supported. * Compromised and negotiated to attain an agreement |
| Oral Communication (Presentation)  (12 Marks) [All CLOs] |  | * Communicates with a limited sense of audience and purpose * No eye contact, no body language, and no decorum * Communicates with limited clarity * Uses language with limited accuracy and effectiveness. * Tension and anxiety are palpable; * Has difficulty recovering from errors. | Not all of the foregoing are true:   * Communicates with a clear sense of audience and purpose * Eye contact, body language, and decorum) * Communicates information and ideas with considerable clarity * Uses language with considerable accuracy and efficacy * Makes insignificant errors, but rapidly recovers * Displays minimal or no tension. | Most of the following, but not all:   * Communicates with a clear sense of audience and purpose * Eye contact, body language, and decorum) * Communicates information and ideas with substantial clarity * Uses language with substantial accuracy and effectiveness. * Makes simple mistakes but recovers swiftly; * Displays minimal or no tension. | Each of the subsequent:   * Communicates with a clear sense of audience and purpose * Eye contact, body language, and decorum * Communicates information and ideas with considerable clarity * Uses language with considerable accuracy and efficacy. * Makes insignificant errors, but recovers rapidly * Demonstrates minimal or no tension. | Each of the subsequent:   * Communicates with a strong awareness of audience and purpose * Maintains audience's attention by using direct eye contact and rarely glancing at notes. * Communicates information and ideas with a high degree of precision and precision * Student appears at ease and confident, with no errors. |
| Follow-up questions and discussion (28 Marks) [All CLOs] |  | Unable to answer questions from the examining board | Able to answer some but not all questions from the examining board | Able to answer most but not all questions from the examining board | Capable of answering all of the examining board's queries. | Capable of responding to all inquiries and demonstrating a thorough understanding of the material. |