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1. What is a signpost word? Give an example.

A signpost word helps guide the reader through a text by indicating the structure and direction of the argument. For example, "Furthermore" is a signpost word used to add additional information.

2. Why do you need a passive voice in technical writing? Justify

Focus on Action or Result: In technical writing, the focus is often on the process, result, or action rather than the person performing the task. For example, in a scientific report, instead of saying, "We conducted the experiment," the passive voice shifts focus to the experiment itself: "The experiment was conducted." This emphasizes the procedure over the individual.

Objectivity and Formality: Passive voice contributes to a formal, impersonal tone that is common in technical writing. It removes personal bias and highlights the importance of the data or findings, maintaining an objective and professional style.

Example:

Active: "The engineer designed the system."

Passive: "The system was designed." (The emphasis is on the system, not the engineer.)

3. What is concord in grammar?

Concord refers to the agreement between the subject and the verb in a sentence.

For example, "She writes" (singular) versus "They write" (plural).

4. Define a project report and Name two common types of project reports.

A project report is a detailed document that describes the objectives, methodology, findings, and conclusions of a project. It serves to communicate the results and insights gained from a research or practical project to stakeholders.

Two common types of project reports are technical reports and feasibility reports.

5. Why is it important to cite sources in a project report? How do you cite in a journal? Give example.

Citing sources is important to acknowledge the original authors, avoid plagiarism, and provide evidence for the claims and data presented in the report.

Citation styles vary, but one of the most common is the IEEE format. The citation typically includes the author's name, publication year, title, journal name, volume, issue number, and page numbers.

Example

Smith, J. (2020). The role of nanotechnology in sustainable energy. *Journal of Renewable Energy*, 45(3), 123-134.

In this example:

- **Smith, J.** is the author.
 - **2020** is the publication year.
 - **The role of nanotechnology in sustainable energy** is the article title.
 - **Journal of Renewable Energy** is the journal name.
 - **45** is the volume, **3** is the issue, and **123-134** are the page numbers.
6. Name two tools used to detect plagiarism.
- **Turnitin:** Compares submissions against a vast database of academic work and online sources, providing a similarity report highlighting potential plagiarism.
 - **Grammarly:** Offers a plagiarism checker that scans text against billions of web pages to identify copied content.
 - **Copyscape:** Detects duplicate content on the web, useful for ensuring original content in online publications.

PART B (2x11 = 22 marks)

7 (a) **Writing skills** are crucial for effectively communicating ideas, arguments, and findings.

These skills involve clarity, coherence, and correctness in writing. Key aspects include:

- **Clarity:** Ensure your writing is clear and understandable. Avoid ambiguous language and ensure that your sentences are structured to convey your message precisely.

- o *Example:* Instead of writing "The report covers various aspects," specify "The report covers the methodology, findings, and implications of the study."

- **Coherence:** Maintain logical flow and connectivity between sentences and paragraphs.

- o *Example:* Use transition words like "however," "therefore," or "consequently" to

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link ideas smoothly.

- **Correctness:** Adhere to grammatical rules, spelling, and punctuation.

- o *Example:* Avoid errors such as "its" instead of "it's" and "their" instead of "there."

Corrected Paragraph:

The proposed accessibility enhancements will significantly improve the user experience on the online learning platform. Firstly, upgrading screen reader compatibility will ensure that users with visual impairments can navigate the platform more effectively. Secondly, improving the color contrast between text and background will enhance readability for users with color blindness. Furthermore, these changes will not only comply with current accessibility standards but also boost overall user satisfaction and engagement. As a result, the platform will become more inclusive, accommodating a wider range of users in the learning process. Ultimately, these improvements will foster a more equitable and accessible online learning environment.

Key Corrections:

1. Cohesion and Clarity:

- o **Original:** "will greatly improve" vs. **Corrected:** "will significantly improve" – "Significantly" provides a stronger emphasis.

- o **Original:** "upgrade of screen reader compatibility" vs. **Corrected:** "upgrading screen reader compatibility" – The gerund form "upgrading" provides a clearer focus.

2. Grammar and Consistency:

- o **Original:** "by improving the color contrast of text and background" vs. **Corrected:** "improving the color contrast between text and background" – "Between" clarifies the relationship.

- o **Original:** "increase overall user satisfaction and engagement" vs. **Corrected:** "boost overall user satisfaction and engagement" – "Boost" is more dynamic.

3. Overall Flow:

- o The revised paragraph ensures a logical flow of ideas, maintains a formal tone, and clearly articulates the benefits of the enhancements. This corrected version is well-organized, maintains cohesion, and adheres to proper grammar, making it suitable for a 3-mark question.

7 (b) Solutions:

Part A:

1. Draft of "Product Features and Benefits" Section:

Product Features and Benefits

Our new software offers a range of advanced features designed to enhance productivity and streamline workflow. **Firstly**, the software includes an intuitive interface that simplifies navigation, allowing users to access key functionalities with ease. **Secondly**, it boasts real-time analytics capabilities, which enable users to monitor performance metrics and make data-driven decisions swiftly. **Furthermore**, the software integrates seamlessly with existing systems, minimizing disruption and maximizing efficiency.

Benefits of these features include increased operational efficiency, reduced time spent on manual tasks, and improved decision-making based on accurate, up-to-date data. By incorporating these advanced functionalities, our software ensures that users can achieve their goals more effectively and with greater ease.

Grammar and Vocabulary Usage:

- o **Grammar:** Ensure proper use of subject-verb agreement, correct punctuation, and appropriate sentence structure.

- o **Vocabulary:** Utilize precise and professional terms that convey the intended meaning clearly.

2. Corrections and Explanations:

- o **Original:** "The new software has a user-friendly interface which make it easier for employees to use."

- **Corrected:** "The new software has a user-friendly interface, which makes it easier for employees to use."

- **Explanation:** The verb "make" should be "makes" to agree with the

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singular subject "interface." A comma is added before "which" to separate the relative clause.

o **Original:** "Our team is working hardly to ensure the product will meets all industry standards."

▪ **Corrected:** "Our team is working hard to ensure the product meets all industry standards."

▪ **Explanation:** The adverb "hardly" is incorrect; "hard" is the correct adverb in this context. "Will meets" should be "meets" as "will" is not needed with the present tense verb.

o **Original:** "We believe that the features are designed to meet the need of our customers."

▪ **Corrected:** "We believe that the features are designed to meet the needs of our customers."

▪ **Explanation:** "Need" should be pluralized to "needs" to match the plural subject "features."**Part B:**

Comparison and Contrast of Grammar and Vocabulary in Technical vs. Non-Technical Writing:

• Technical Writing:

o **Grammar:** Emphasis on precision and clarity; complex sentences are often used, but they must be structured clearly. For instance, technical writing often includes detailed descriptions and specifications.

o **Vocabulary:** Uses specialized terminology relevant to the field. For example, terms like "real-time analytics" or "system integration" are specific to technical contexts.

• Non-Technical Writing:

o **Grammar:** Focuses on readability and engagement. Simpler sentence structures are often preferred, and less complex grammatical constructs are used.

o **Vocabulary:** Uses general language that is accessible to a broader audience. Words and phrases are chosen to be easily understood by readers without technical backgrounds.

Impact on Clarity and Effectiveness:

• **Technical Writing:** Precision and specialized vocabulary ensure accuracy and convey detailed information. However, it must be carefully constructed to avoid confusion.

• **Non-Technical Writing:** Simplicity and general vocabulary enhance readability and engagement. It ensures that the message is understood by a wide audience without prior knowledge of the subject.

This comparison highlights the importance of tailoring grammar and vocabulary to the intended audience to maximize the clarity and effectiveness of both technical and non-technical writing.

8 (a) Types of Reports

Reports can be categorized based on their purpose and audience:

• **Technical Reports:** Provide detailed technical information and are often used in STEM fields. They focus on the methods, results, and technical aspects of a project.

Example: A technical report on a new software application would include detailed descriptions of the software's functionality, coding techniques, and performance evaluation.

• **Progress Reports:** Update stakeholders on the status of a project. They outline what has been accomplished, what remains to be done, and any issues encountered.

Example: A progress report on a construction project would detail completed phases, upcoming tasks, and any delays or challenges.

• **Feasibility Reports:** Assess the practicality and potential success of a proposed project. They evaluate the benefits, costs, and risks associated with the project.

Example: A feasibility report for launching a new product might analyze market demand, production costs, and potential profitability. • **Annual Reports:** Provide a summary of activities and financial performance over a year.

They are often used by organizations to inform stakeholders about their yearly performance.

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Example: An annual report for a non-profit organization would include information on fundraising efforts, program outcomes, and financial statements.

- **Case Study Reports:** Focus on a specific instance or example to analyze and draw conclusions about a broader issue.

Example: A case study report on a company's response to a major crisis might analyze the effectiveness of the company's crisis management strategies.

Purpose – Intended Audience

The purpose of a project report is to communicate the results and significance of a project to a specific audience. Understanding the intended audience is crucial as it determines the level of detail, language, and format used in the report.

- **Academic Audience:** For academic reports, such as those for a thesis or research paper, the report should be detailed, evidence-based, and adhere to academic standards. It often includes extensive literature reviews and technical language.

Example: A research report on the effects of climate change on coastal ecosystems would be detailed and include citations from academic journals.

- **Professional Audience:** For reports intended for industry professionals, clarity and practicality are key. The report should focus on actionable insights and practical implications.

Example: A business report on market trends might include executive summaries, key findings, and actionable recommendations.

- **General Public:** For a general audience, the report should be accessible and written in layman's terms, avoiding technical jargon and focusing on key points and implications.

Example: A report on a community health initiative would present findings in a straightforward manner with an emphasis on practical benefits for the community.

8(b) Definition: Statistical analysis involves using statistical methods to interpret data and make inferences. It helps to identify patterns, trends, and relationships within the data.

Types of Statistical Analysis:

- **Descriptive Statistics:** Summarizes and describes the main features of a dataset.

General Example: Calculating the average test scores of students to summarize their performance.

- **Inferential Statistics:** Draws conclusions about a population based on a sample using methods such as hypothesis testing and confidence intervals.
General Example: Using a sample survey to estimate the average income of a city's population and testing if the observed differences in income levels are statistically significant.

- **Predictive Statistics:** Uses statistical models to make predictions about future data based on historical data.

General Example: Developing a model to predict future sales based on past sales data and market trends.

Detailed Example: In a project report analyzing BERT model performance, statistical analysis might include:

- **Descriptive Analysis:** Reporting the mean accuracy of the model on various datasets.

- **Inferential Analysis:** Performing hypothesis tests to determine if improvements in performance are statistically significant compared to baseline models.

- **Predictive Analysis:** Using the BERT model to forecast trends in text classification accuracy based on historical data

PART C (2x13 = 26 Marks)

9 (a) Structure of a Project Report

- **Title Page:** Contains the report title, authors, institution, and date.

Example: "Development of a Mobile Health Application" by Jane Doe and John Smith, XYZ University, August 2024.

- **Abstract:** Summarizes the key points of the report in about 150-250 words.

Example: "This report presents the development and evaluation of a mobile health application designed to track user physical activity and diet. The application was tested on 100 participants, and results indicate a 20% improvement in user health metrics."

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• **Introduction:** Provides background, problem statement, and objectives.

Example: "The increasing prevalence of lifestyle-related diseases has driven the need for effective health management tools. This project aims to develop a mobile application to help users monitor their physical activity and dietary habits."

• **Methodology:** Details the approach, tools, and techniques used.

Example: "The application was developed using Flutter for cross-platform compatibility. Data was collected through user surveys and app usage metrics."

• **Results:** Presents data and findings using tables, charts, or graphs.

Example: "Table 1 shows the average improvement in physical activity among users after three months of using the application."

• **Analysis and Discussion:** Interprets the results and discusses implications.**Example:** "The data shows a significant increase in daily steps among users, suggesting that the application effectively encourages physical activity."

• **Conclusions:** Summarizes key findings and recommendations.

Example: "The mobile health application successfully improved user health metrics. Future work should focus on adding features based on user feedback."

• **References:** Lists all sources cited in the report.

Example: "Smith, J., & Jones, L. (2023). *Mobile Health Applications: A Review*. Health Tech Journal, 12(3), 45-56."

• **Appendices:** Includes additional materials like raw data or detailed calculations.

Example: "Appendix A includes the full survey questionnaire used to gather user feedback."

9 (b) Solutions:

Part A:

1. Technical Manual for Internal Use:

o **Approach:** The technical manual should be highly detailed and precise, catering to an audience familiar with technical concepts. It should include:

▪ **Detailed Descriptions:** Elaborate on the new features, including their functionality and integration with existing systems.

▪ **Code Snippets:** Provide examples of code that illustrate how the new features can be implemented or configured.

▪ **System Requirements:** Outline the hardware and software prerequisites needed to support the new update.

▪ **Troubleshooting Steps:** Offer guidance on common issues and their resolutions.

o **Writing Style:** Use technical jargon and formal language suitable for a professional audience. Ensure that the information is presented logically, often with headings, subheadings, and bulleted lists for clarity.

2. User-Friendly Guide for Clients:

o **Approach:** The user-friendly guide should focus on clarity and simplicity, aiming to assist users with varying levels of technical knowledge. It should include:

▪ **Clear Overviews:** Summarize the new features and their benefits in straightforward language.

▪ **Step-by-Step Instructions:** Provide detailed yet easy-to-follow instructions on how to use the new features, with screenshots to aid understanding.

▪ **Glossary:** Include a glossary of terms if necessary to explain any technical terms in simple language.

o **Writing Style:** Use plain language and a conversational tone. The content should be organized with headings, bullet points, and visual aids to enhance comprehension and usability.

Part B:

Comparison and Contrast:

• **Writing Style:** The technical manual employs a formal and precise style, suitable for readers with technical backgrounds, while the user-friendly guide uses a conversational and approachable tone to engage non-technical users.

• **Structure:** The technical manual is structured with detailed technical sections and in-depth

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information, whereas the user-friendly guide is structured with simple, easy-to-follow steps and visual aids.

- **Content:** The content in the technical manual is comprehensive, including technical details, code snippets, and troubleshooting tips, whereas the user-friendly guide focuses on summarizing features, providing step-by-step instructions, and using visual aids to clarify complex information.

This approach ensures that both documents effectively meet the needs of their respective audiences, utilizing the principles of technical writing and general writing to achieve their intended purposes.

10 (a) 1. Define plagiarism and describe its different types. Provide examples of each type.(4)

- o **Definition:** Plagiarism is the act of using someone else's work, ideas, or expressions without proper acknowledgment, thereby presenting them as one's own.

- o **Types and Examples:**

- **Direct Plagiarism:** Copying text word-for-word from a source without quotation marks or citation. *Example:* Emily's paper contains a paragraph directly copied from a journal article without any citation.

- **Self-Plagiarism:** Reusing one's own previously published work without proper citation. *Example:* Jacob's thesis includes large sections from his earlier journal article on the same topic without referencing the original publication.

- **Mosaic Plagiarism:** Integrating phrases or ideas from a source without citation, creating a patchwork of text. *Example:* Emily's paper includes phrases from multiple sources but lacks proper citations, making it appear as if the text is original.

- **Accidental Plagiarism:** Failing to cite sources or paraphrasing too closely without realizing it. *Example:* Jacob paraphrases information from a report but doesn't cite it, mistakenly thinking it's common knowledge.

Part B: Why is Plagiarism Unethical? (4 marks)

2. Explain why plagiarism is considered unethical. Include reasons and potential consequences.

- o **Unethical Nature:**

- **Intellectual Dishonesty:** Plagiarism misrepresents someone else's work as one's own, which is dishonest and violates academic and professional integrity.

- **Erosion of Trust:** It undermines trust in academic and research institutions, leading to skepticism about the credibility of the work produced.

- **Injustice to Original Authors:** It denies original creators the recognition and credit for their work, potentially impacting their academic or professional reputation.

- o **Consequences:**

- **Academic Penalties:** Emily and Jacob could face academic penalties such as failing grades, suspension, or expulsion.

- **Professional Repercussions:** Plagiarism can damage one's professional reputation, leading to a loss of credibility and career opportunities.

- **Legal Implications:** In severe cases, it may result in legal action from the original authors or publishers.

Part C: How to Avoid Plagiarism? (3 marks)

3. Describe strategies and tools that can be employed to avoid plagiarism in academic and professional writing.

- o **Strategies:**

- **Proper Citation:** Always provide clear and accurate citations for all sources used, following the appropriate style guide (e.g., APA, MLA).

- **Paraphrasing:** Rewriting information in your own words while preserving the original meaning and citing the source.

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- **Using Quotation Marks:** When quoting directly from a source, use quotation marks and provide a citation.

- o **Tools:**

- **Plagiarism Detection Software:** Utilize tools such as Turnitin, Grammarly, and Copyscape to check for unintentional plagiarism by comparing the text against a database of sources.

- **Turnitin:** Compares submissions against a vast database of academic work and online sources, providing a similarity report highlighting potential plagiarism.

- **Grammarly:** Offers a plagiarism checker that scans text against billions of web pages to identify copied content.

- **Copyscape:** Detects duplicate content on the web, useful for ensuring original content in online publications.

Part D: Laws and Institutional Policies Against Plagiarism (2 marks)

4. Discuss the legal and institutional measures in place to address plagiarism. Include examples of laws and university policies.

- o **Legal Measures:**

- **Copyright Law:** Plagiarism involving copyrighted material can lead to legal consequences under copyright infringement laws. This can include fines and legal action from the original authors or publishers.

- **Academic Integrity Laws:** Some jurisdictions have specific academic integrity laws that institutions must follow, which include measures to combat and penalize plagiarism.

- o **Institutional Policies:**

- **Code of Conduct:** Universities often have Codes of Conduct detailing rules regarding plagiarism and academic dishonesty, including consequences such as grade penalties, suspension, or expulsion.

- **Educational Programs:** Institutions may provide workshops, seminars, or online resources to educate students on proper citation practices and the importance of academic integrity.

10 (b) (i)

Acknowledgment

I would like to express my deepest gratitude to everyone who has supported and contributed to the successful completion of this project, **"Optimizing Solar Panel Efficiency through Material Innovation."**

First and foremost, I am extremely grateful to my supervisor, **Dr. Katherine Smith**, Professor at the Department of Engineering, for her invaluable guidance, constant encouragement, and constructive feedback throughout this project. Her expertise and insights were instrumental in shaping the direction of my research.

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Finally, I am deeply thankful to my **family** for their continuous emotional support, understanding, and encouragement during the course of this project. Their unwavering belief in me kept me motivated, even during challenging times.

Thank you all for your contributions, support, and belief in this endeavor.

(ii) Report Writing in STEM Fields: A Detailed Approach

1. Report Structure:

In STEM fields, reports follow a standardized structure to ensure clarity, consistency, and precision. The structure for Emma's report could be as follows:

- o **Title Page:** Include the title of the report, **"Sustainable Concrete Mixes:**

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Analyzing the Effect of Recycled Materials on Durability and Strength," the author's name, date, and affiliation (Civil Engineering Department, University).

- o **Abstract:** A concise summary of the project, including objectives, methods, key findings, and conclusions. This should give readers a snapshot of the research without delving into specifics. For example, "This research investigates the use of recycled concrete aggregates (RCA) and industrial by-products as partial substitutes for cement and traditional aggregates in concrete mixes..."

- o **Introduction:** Introduce the problem statement, objectives of the project, and the significance of studying recycled materials in concrete. Emphasize the need for sustainable construction methods and how this research can contribute to reducing environmental impact.

- o **Literature Review:** Summarize previous studies on recycled materials in concrete. Cite academic papers, industry reports, and standards that outline the current understanding of the topic. For example, mention studies showing how RCA affects concrete's compressive strength, durability, and lifecycle performance.

- o **Methodology:** Detail the experimental procedures used, including the concrete mix

designs, proportions of recycled materials, mixing and curing methods, and the equipment used for testing. Explain why these specific methods were chosen and how they align with standard engineering practices, such as ASTM or IS codes.

- o **Results and Discussion:** Present the data in tables, charts, and graphs, showing the effects of different recycled material ratios on strength, durability, and other performance metrics. Discuss these results in the context of engineering requirements, such as compressive strength exceeding certain thresholds, and compare them with conventional concrete mixes. Highlight any unexpected findings or trends.

- o **Conclusion and Recommendations:** Summarize the main findings and suggest practical applications for sustainable construction practices. For instance, recommend the ideal proportion of recycled materials to achieve optimal durability without compromising structural integrity. Suggest areas for future research, such as long-term durability studies or scaling up the experimental concrete mixes for real-world applications.

- o **References:** Cite all the sources used in the report, including academic papers, industry standards, and government regulations.

2. Data Presentation and Analysis:

In STEM reports, presenting data clearly and systematically is crucial. Emma should use tables and graphs to show the relationship between recycled material content and concrete performance. For example:

- o A graph illustrating compressive strength against different percentages of RCA.

- o A table comparing the durability properties of various mixes, such as water absorption rates or freeze-thaw resistance.

Statistical analysis tools such as regression analysis or ANOVA (Analysis of Variance) could be employed to analyze the data and identify significant differences between the mixes.

3. Technical Writing Style:

Technical writing in STEM fields should be clear, precise, and objective. Emma needs to avoid overly complex language or unnecessary jargon but should also maintain the technical accuracy required for the audience. She might write:

- o "The use of 30% RCA resulted in a 15% reduction in compressive strength compared to the control mix. However, this mix demonstrated superior durability under freeze-thaw conditions."

This approach ensures that both experts and general readers can understand the implications of the findings.

4. Scientific Rigor and Practical Application:

Scientific rigor involves presenting methods and results transparently and ensuring that the findings are repeatable by others. Emma should include detailed descriptions of her

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experimental design, such as the curing time, temperature, and materials sourced. However, STEM reports also need to bridge the gap between academic research and practical application. Emma's project should emphasize how the findings can be used by civil engineers and contractors to incorporate recycled materials into real-world construction projects. For instance, she could suggest that using RCA at a specific percentage in non-load-bearing structures could reduce construction costs and carbon emissions.

5. Use of Diagrams and Visuals:

Including technical diagrams and images of the experimental setup can enhance the report's clarity. For example, Emma could add images of the concrete testing apparatus or flowcharts explaining the experimental procedure.

6. Tailoring the Report for a Mixed Audience:

Reports in STEM fields often need to balance between technical depth for specialists and clarity for a broader audience. Emma should write with the understanding that her report may be reviewed not only by her professors but also by industry professionals or journal editors. Using clear section headings, well-labeled diagrams, and an accessible abstract helps achieve this balance.