



SPRING END SEMESTER EXAMINATION 2024

4th Semester, B. Tech.

SCIENTIFIC & TECHNICAL WRITING

EX20003

(For 2022 Admitted Batches)

Time: 2 Hours 30 Minutes

Full Marks: 50

Answer any FIVE questions.

Question paper consists of two SECTIONS i.e. A and B.

Section A is compulsory.

Attempt any Four questions from Section B.

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

SECTION A (Learning Level 1)				Learning Levels as per Bloom's Taxonomy	Course Outcomes (CO)
1.		Answer the following questions.	[1x10]		
	(a)	Which of the following topics is most likely to be written about in a technical style? A sunset/ the cuisine of a country/ electronic circuitry/ a dentist's office/ a classroom environment	1	II	CO1
Sol		Electronic circuitry			
	(b)	Nominalize both verbs in the following sentence: Can you please evaluate what the student demonstrated?	1	II	CO2
Sol		Can you please provide an evaluation of the student's demonstration ? [0.5+0.5=1]			
	(c)	Should a shopping list be written as a numbered list or a bulleted list? Give one reason for your answer.	1	II	CO3
Sol		Numbered list. Reason: some items may be needed more urgently than the others. [0.5+0.5=1]			
	(d)	Identify two transition elements in the following sentence: Contrary to homepages and other web pages, a landing page is a standalone page. It is disconnected from the website's navigation, focused on the sole purpose of convincing a visitor to sign up for a free trial or buy a product.	1	II	CO3
Sol		Transition element 1: Contrary to Transition element 2: the sole purpose of [0.5+0.5=1]			
	(e)	What does a cover page of a thesis contain?	1	II	CO4
Sol		i. Title of the thesis ii. Name of the student			

		iii. On the spine of the hard copy - Title of the thesis - Name of the student - Year of submission of the final copy of the thesis - Institute name along with its logo - Type of thesis (whether MS or PhD)			
	(f)	What is the purpose of Conflict-of-Interest Statement in a research document?	1	II	CO4
Sol		The Conflict-of-Interest Statement in a research document serves to transparently disclose any potential conflicts that could influence the objectivity or integrity of the research findings. It ensures credibility by revealing any affiliations, financial interests, or personal relationships that might bias the study's outcome, thus upholding ethical standards in academic inquiry.			
	(g)	Find the correct one: i) The torque is 25 n·m. ii) The torque is 25 n.m. iii) The torque is 25 nm. iv) The torque is 25 N m.	1	II	CO5
Sol		Option iv) The torque is 25 N m.			
	(h)	Correct the following sentence: During the last five days, the temperature rose by 4°C.	1	II	CO5
Sol		During the last five days, the temperature has risen by 4°C.			
	(i)	Frame a suitable title using capitalization rule for the below mentioned conditions: Due to mixed traffic conditions, accidents are unavoidable in smart city Bhubaneswar.	1	II	CO6
Sol		‘Unavoidable Accidents Due to Mixed Traffic Conditions in Smart City Bhubaneswar’.			
	(j)	Explain the difference between creator and author.	1	II	CO6
Sol		A ‘creator’ is someone who produces or brings something into existence, such as a work of art, a product, or an idea. On the other hand, an ‘author’ specifically refers to someone who writes or creates written content, such as books, articles, or documents. While all authors are creators, not all creators are authors.			
SECTION B (Learning Levels 2, 3, 4, 5 and 6)				Learning Levels as per Bloom’s Taxonomy	Course Outcomes (CO)
2.	(a)	Study the following information. Mention what kind of technical writing it is. Point out four characteristics of technical writing in it:	[1+4=5]	III	CO1

		<div><div><div><div><div><div>Nutrition Facts</div><div>8 servings per container</div><div>Serving size 2/3 cup (55g)</div></div></div><div><div><div>Amount per serving</div><div>Calories 230</div></div></div><div><div><div>% Daily Value*</div></div></div><div><div><div>Total Fat 8g</div><div>10%</div></div><div><div>Saturated Fat 1g</div><div>5%</div></div><div><div>Trans Fat 0g</div><div></div></div></div><div><div><div>Cholesterol 0mg</div><div>0%</div></div><div><div>Sodium 160mg</div><div>7%</div></div><div><div>Total Carbohydrate 37g</div><div>13%</div></div><div><div>Dietary Fiber 4g</div><div>14%</div></div><div><div>Total Sugars 12g</div><div></div></div><div><div>Includes 10g Added Sugars</div><div>20%</div></div></div><div><div><div>Protein 3g</div><div></div></div></div><div><div><div>Vitamin D 2mcg</div><div>10%</div></div><div><div>Calcium 260mg</div><div>20%</div></div><div><div>Iron 8mg</div><div>45%</div></div><div><div>Potassium 240mg</div><div>6%</div></div></div><div><div><div><small>* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.</small></div></div></div></div></div></div>			
Sol	It is an ingredients label from a container of some ready-to-eat food. (Any other description may be marked correct.) Four characteristics: (i) organized, (ii) user-friendly, (iii) end-user oriented, (iv) takes information from a complex industry and simplifies for audience (i.e. explanation of DV at the bottom)				
	(b)	Correct the following paragraph: ATM's are Not Taking Debit card's, please pay In Cash. Please make Sure your given the Correct change before You leave the ATM.	[5]	III	CO2
Sol	ATMs are not taking debit cards. Please pay in cash. Please make sure you are given the correct change before you leave the ATM.				
3.	(a)	Should a project proposal be developed in a Description pattern, or a Persuasion pattern, or a Cause-and-Effect pattern? Give reasons for your answer.	[1+4=5]	III	CO3
Sol	Persuasion pattern. Reason: A proposal needs approval and funding to become a project. The approving authority and the funding authority must be convinced about the possible outcome of the project. So, the authorities need to be persuaded to support and endorse the proposal.				
	(b)	Compose a brief Process pattern paragraph on 'How to avoid plagiarism.' (150 words)	[5]	III	CO3
Sol	Structure of paragraph should have a step-by-step approach as illustrated in the pdf notes provided in class. Content of paragraph should match notes on plagiarism, also shared as a pdf.				
4.	(a)	List the sections of a research manuscript in a sequential order and explain them briefly.	[5]	III	CO4
Sol	These are the sections typically found in a research manuscript in sequential order: Title Page: This section includes the title of the research paper, the names of the authors, their affiliations (such as university or institution), and sometimes contact information.				

<p>Abstract: The abstract provides a concise summary of the research paper, outlining the purpose, methodology, key findings, and conclusions. It helps readers quickly understand the main points of the study.</p> <p>Introduction: This section introduces the research topic, provides background information, states the research question or hypothesis, and outlines the objectives and significance of the study. It sets the stage for the rest of the paper.</p> <p>Literature Review: The literature review surveys existing research and scholarly articles relevant to the topic of study. It provides context, establishes the theoretical framework, and highlights gaps or areas where the current research contributes.</p> <p>Methodology: In this section, researchers describe the methods and techniques used to conduct the study. It includes details such as research design, data collection methods, sampling procedures, and data analysis techniques. The methodology should be clear and replicable.</p> <p>Results: Here, researchers present the findings of their study in a clear and organized manner. This section typically includes tables, figures, and graphs to present quantitative data, along with textual descriptions of the results.</p> <p>Discussion: The discussion section interprets the results in relation to the research question or hypothesis, compares them with previous studies, and discusses their implications. Researchers may also address limitations of the study and suggest directions for future research.</p> <p>Conclusion: This section summarizes the main findings of the study, restates the research question or hypothesis, and discusses the implications of the findings. It may also offer recommendations based on the research outcomes.</p> <p>References: The reference list includes citations for all sources cited in the research paper. It follows a specific citation style (such as APA, MLA, or Chicago) and provides readers with the information needed to locate the original sources.</p> <p>Appendices: Appendices contain additional supplementary material that is relevant to the study but not essential for understanding the main text. This may include raw data, survey instruments, or detailed methodological procedures.</p> <p>Each section plays a crucial role in communicating the research process, findings, and significance to the academic community.</p>					
	(b)	<p>Write a suitable title, abstract and keywords for the following paragraph.</p> <p>This study explores the optimization of route selection to enhance travel efficiency by employing a multi-criteria approach. The objective is to identify the most suitable route considering factors such as distance, travel time, traffic conditions, and safety. Through a systematic evaluation process, potential routes are assessed based on these criteria, and the optimal route is selected to minimize travel time and maximize safety. The methodology involves identifying the destination, analyzing possible routes, evaluating each route based on predefined criteria, and selecting the route that best meets the established criteria. This research aims to provide practical insights into route planning strategies for individuals and transportation systems to improve overall travel experience and efficiency.</p>	[5]	III	CO4
Sol	<p>Title: Enhancing Travel Efficiency through Multi-Criteria Route Optimization: A Systematic Approach</p>				

		<p>Abstract: This study delves into optimizing route selection to improve travel efficiency by employing a multi-criteria approach. The primary aim is to pinpoint the most suitable route, considering factors such as distance, travel time, traffic conditions, and safety. Through systematic evaluation, potential routes undergo scrutiny based on these criteria, culminating in the selection of the optimal route to minimize travel time and maximize safety. The methodology encompasses destination identification, route analysis, criteria-based route evaluation, and selection of the route that best aligns with established criteria. The research contributes practical insights into route planning strategies for individuals and transportation systems, aiming to enhance overall travel experience and efficiency.</p> <p>Keywords: Route optimization, Travel efficiency, Multi-criteria approach, Transportation planning, Route selection, Travel safety, Systematic evaluation.</p>			
5.	(a)	Following any standard reference style, write details of references for a book, a journal paper, a book chapter, conference proceedings and material on the Web.	[5]	III	CO5
Sol		<p>The details of references for each type are:</p> <p>Book: Author(s): Last name, Initials, Year of publication: (Year), Title of book: Subtitle if applicable, Edition if not the first: Edition, Place of publication: Publisher.</p> <p>Example: Smith, J. R. (2005), The Art of Writing: A Comprehensive Guide. 2nd ed. New York, NY: ABC Publishing.</p> <p>Journal Paper: Author(s): Last name, Initials, Year of publication: (Year), Title of article, Journal Title, Volume (Issue), Page range.</p> <p>Example: Johnson, A. B., & Williams, C. D. (2018), Understanding Climate Change: A Review of Recent Studies, Environmental Science and Policy, 20(4), 123-135.</p> <p>Book Chapter: Author(s) of chapter: Last name, Initials, Year of publication: (Year), Title of chapter. In Editor(s) (Ed.), Title of book: Subtitle if applicable (Page range), Place of publication: Publisher.</p> <p>Example: Brown, M. S. (2009), The Role of Education in Economic Development, In K. Jones & L. White (Eds.), Education and Economic Growth: A Global Perspective (pp. 45-67), London, UK: XYZ Publishers.</p> <p>Conference Proceedings: Author(s): Last name, Initials, Year of publication: (Year), Title of paper, In Editor(s) (Ed.), Title of conference proceedings (Page range), Place of publication: Publisher.</p> <p>Example: Garcia, R. S., & Lee, M. J. (2017), Advancements in Artificial Intelligence, In J. Smith & A. Johnson (Eds.), Proceedings of the International Conference on Artificial Intelligence (pp. 56-78), Paris, France: IEEE.</p> <p>Web Material:</p>			

Author(s) if available: Last name, Initials, (Year, Month Day of publication or last update), Title of document or webpage, Website Name. URL.

Example:
World Health Organization, (2023, June 15), COVID-19 Vaccine Distribution Update. WHO. <https://www.who.int/news-room/covid-19-vaccine-distribution-update>

These examples follow the APA style, but remember to adapt the format according to the specific citation style required by your institution or publication.

(b)

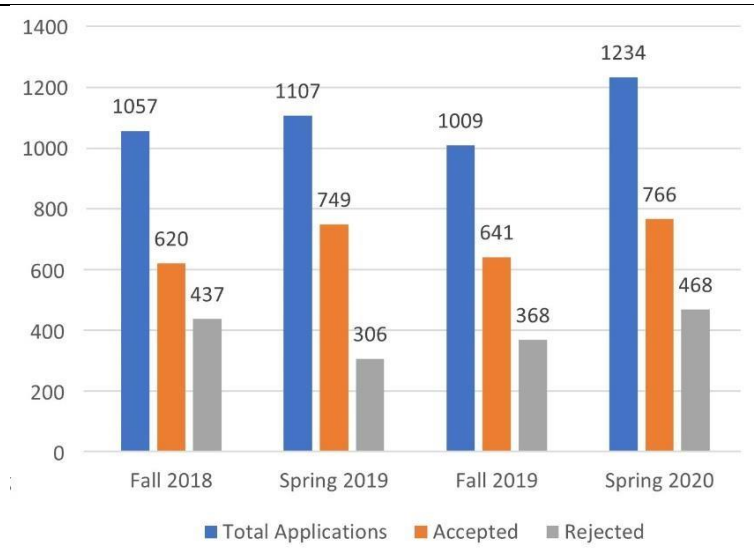


Figure 1: Session-wise Students' Application Status

Represent the data of Figure 1 in an appropriate Tabular format and Label the Table with appropriate caption.

[5]

III

CO5

Sol

Table 1: Session-wise Students' Application Status

Session	Fall 2018	Spring 2019	Fall 2019	Spring 2020
No. of Applications				
Accepted	620	749	641	766
Rejected	437	306	368	468
Total	1057	1107	1009	1234

6.

(a)

In conducting your research, you have received assistance from others in the form of materials, funding, methodologies, fellowships, collaborative discussions, and manuscript revisions. Write acknowledgments in the required sequence mentioning the above points.

[5]

III

CO6

Sol

Preferred Sequence of Acknowledgements:

- i. Intellectual contributions
- ii. Technical support
- iii. Provision of materials
- iv. Helpful discussions
- v. Revisions and preparations of the manuscript
- vi. Funds, grants, fellowships, or financial contributions

	<p>We would like to express our sincere gratitude to [Name or Organization] for providing the necessary materials essential for conducting this research. Their generous assistance greatly facilitated the progress of our study.</p> <p>We are grateful for the fruitful collaborative discussions with [Names of Collaborators or Institutions]. Their input and feedback enriched our understanding of the research topic and enhanced the quality of our work.</p> <p>We would like to thank [Names of Individuals or Organizations] for their careful review and constructive feedback on earlier drafts of the manuscript. Their thoughtful revisions and suggestions greatly improved the clarity and coherence of the final document.</p> <p>Furthermore, we acknowledge the financial support received from [Name of Funding Agency or Organization]. Their funding enabled us to carry out the research effectively and achieve meaningful results.</p> <p>Additionally, we extend our appreciation to [Name of Fellowship Program or Institution] for awarding [Name of Researcher] with a fellowship, which provided invaluable support and resources throughout the duration of the study.</p> <p>Overall, the collective contributions of these individuals and organizations have been instrumental in the successful completion of this research project, and we are deeply appreciative of their support.</p>			
(b)	<p>Draw a logic flowchart to depict the following process of a student considering engineering as one of his career options.</p> <p>The process begins with a student considering engineering as their field of study. The student decides to pursue engineering through entrance exam or direct admission.</p> <p>Entrance Exam: If the student qualifies the entrance exam, then they proceed to choose an engineering college. Then they apply for admission, and if their entrance exam score meets the cut-off set by the college, they attend counseling, select a specialization, complete the admission process, and ultimately join the college.</p> <p>Direct Admission: Alternatively, the student might seek direct admission by meeting the eligibility criteria set by certain colleges. If they meet the criteria, then they proceed to choose an engineering college, apply for admission, provide their academic record and test scores. If they meet the admission criteria, then they proceed with the admission process, pay fees, and join the college.</p> <p>The process concludes either when the student successfully joins a college or decides not to pursue engineering at that time.</p>	[5]	III	CO6
Sol	The terms may vary based on individual's perception.			

