Aga Khan University Examination Board

Notes from E-Marking Centre HSSC-I Computer Science Annual Examinations 2023

Introduction

This document has been prepared for the teachers and candidates for the Higher Secondary School Certificate (HSSC) Part I (Class XI) Computer Science. It contains comments on candidates' responses to the 2023 HSSC-I Examination indicating the quality of the responses and highlighting their relative strengths and weaknesses.

E-Marking Notes

This includes overall comments on candidates' performance on every question and *some* specific examples of candidates' responses which support the mentioned comments. Please note that the descriptive comments represent an overall perception of the better and weaker responses as gathered from the e-marking session. However, the candidates' responses shared in this document represent some specific example(s) of the mentioned comments.

Teachers and candidates should be aware that examiners may ask questions that address the Student Learning Outcomes (SLOs) in a manner that requires candidates to respond by integrating knowledge, understanding and application skills they have developed during the course of study. Candidates are advised to read and comprehend each question carefully before writing the response to fulfil the demand of the question.

Candidates need to be aware that the marks allocated to the questions are related to the answer space provided on the examination paper as a guide to the length of the required response. A longer response will not in itself lead to higher marks. Candidates need to be familiar with the command words in the SLOs which contain terms commonly used in examination questions. However, candidates should also be aware that not all questions will start with or contain one of the command words. Words such as 'how', 'why' or 'what' may also be used.

General Observations

Most candidates achieved success in constructing good responses specifically in the following topics.

- Basics Concepts of Computer System
- System Unit
- Network Communications and Protocols
- Wireless Communications

Nonetheless, it is essential for teachers to concentrate on the following concepts and provide candidates with more practice to foster a solid understanding.

- Computer Memory and Storage Devices
- Architecture of a CPU
- Database Fundamentals
- Database Development (MS Access 2007 or Above)

Note: Candidates' responses shown in this report have not been corrected for grammar, spelling, format, or information.

Detailed Comments

Constructed Response Questions (CRQs)

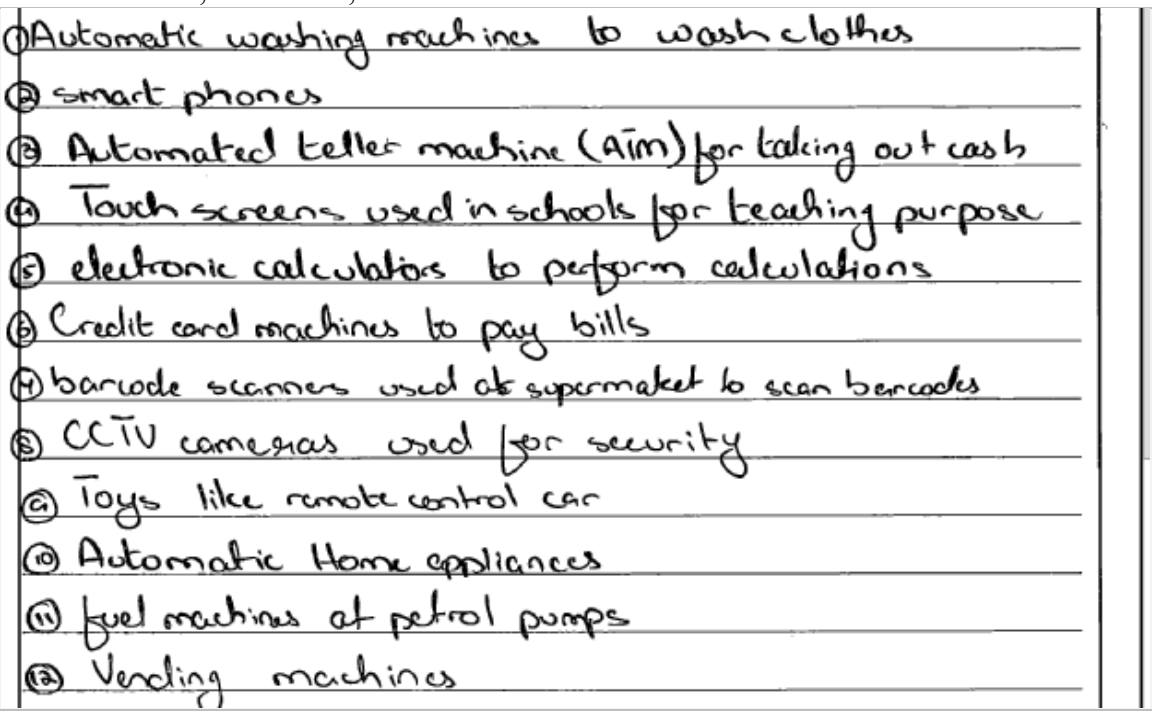
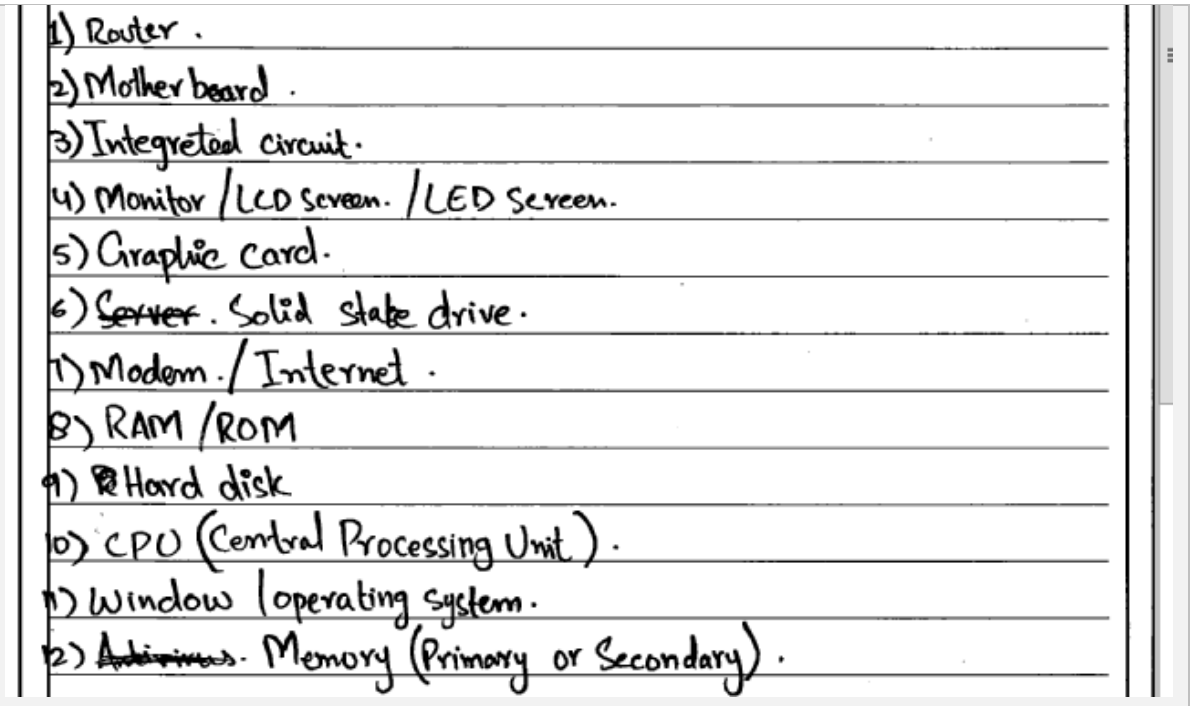
Question No. 1	
Question Text	All devices that contain embedded, specialised computers are called computing devices. Identify any TWELVE computing devices that are used in daily life.
SLO No.	1.1.1
SLO Text	Identify computing devices used for input, process, storage and output.
Max Marks	6
Cognitive Level	U*
Checking Hints	1 mark for identifying TWO devices (TWELVE required) No mark will be awarded on writing ONE device.
Overall Performance	The overall responses of the cohort to this question showed an average level of performance. The task required them to furnish instances related to embedded and specialised computer systems. Some responses showed the standard level of proficiency in this question, with a variety of additional illustrations, while some of the candidates were not able to provide precise examples of embedded or specialised systems.
Description of Better Responses	Better responses correctly identified embedded or specialised computer systems. Additionally, the candidates enriched their answers by providing supplementary instances of embedded or specialised computers. Most candidates mentioned credit card machines, CCTV cameras, and ATMs, which is correct.
Image of Better Response	
Description of Weaker Responses	Weaker responses mentioned objects or devices that are unrelated to specialised and embedded computer systems like graphic card, hard disk and monitor, etc. By introducing irrelevant examples, the responses deviated from the set criteria. Showing real-life examples of embedded systems could enhance the conceptual understanding of the topic.

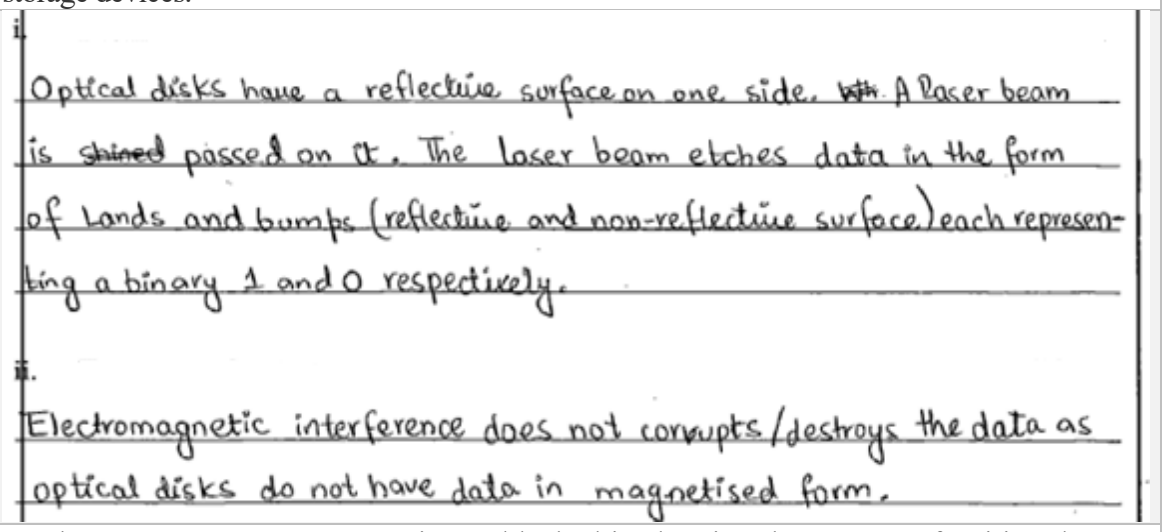
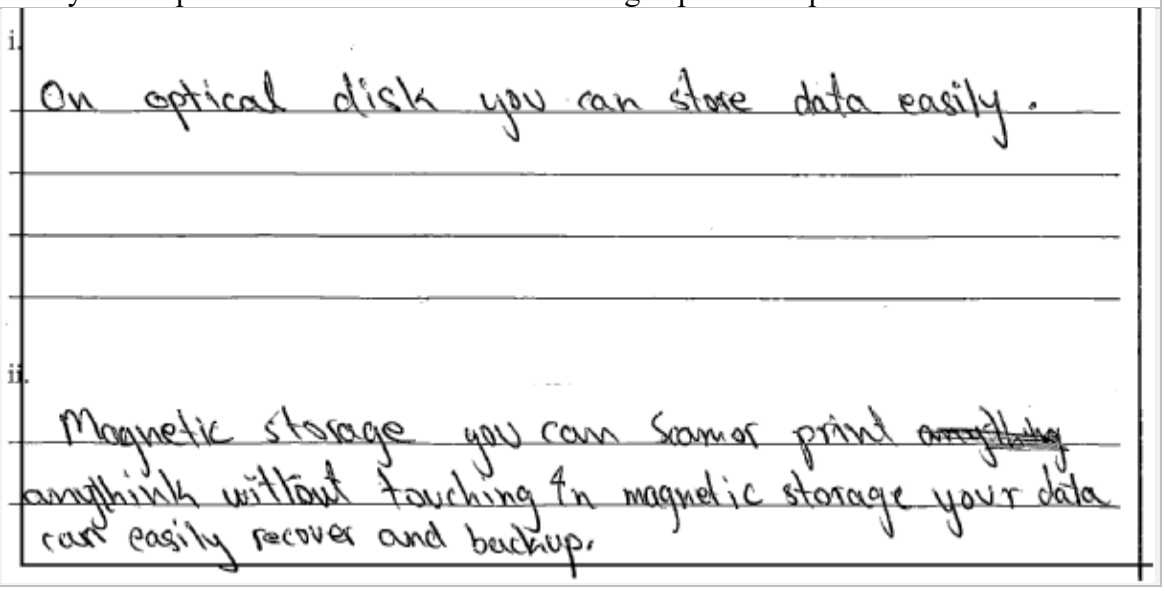
Image of Weaker Response	

Suggestions for improvement (Highlighted part)

How to Approach SLO	Pedagogy** Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating) • Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources	• Story Board • Cause and Effect • Fish and Bone • Concept mapping • Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration ** For description of each pedagogy, refer to Annexure A	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform
Any Additional Suggestion: Teachers are advised to give real life examples of computing devices such as automatic washing machine, microwave etc.		

*K = Knowledge U = Understanding A = Application and other higher-order cognitive skills

Question No. 2	
Question Text	i. Describe the process of writing data on an optical disk. ii. Write ONE advantage of optical storage over magnetic storage.
SLO No.	2.3.1
SLO Text	Compare magnetic, optical and solid state storage devices.
Max Marks	3
Cognitive Level	U

Checking Hints	1 mark for each highlighted point (TWO Required) 1 mark for writing the advantage (ONE Required)
Overall Performance	The cohort's overall response to the question was below average, revealing a misinterpretation of the process of data inscription on a hard disk. Candidates forgot to mention the important advantages of optical storage media when compared to magnetic media, showing the weaker understanding of the concepts. However, several good responses indicated better knowledge and understanding of the subject, highlighting the topic more effectively.
Description of Better Responses	The candidates' responses were very good, showing a precise depiction of the data writing process on a hard disk. Additionally, the candidates correctly identified the advantage of optical storage over magnetic storage like electromagnetic interference has no impact on magnetic storage devices.
Image of Better Response	
Description of Weaker Responses	Weaker responses were not precise and lacked in showing the process of writing data on a hard disk. Furthermore, in such responses, candidates did not explain why optical storage is better than magnetic storage, they wrote very general responses such as optical disk is used to store data, revealing gaps in comprehension. Addressing these aspects with greater clarity and depth would enhance the candidates' grasp of the topic.
Image of Weaker Response	

Suggestions for improvement (Highlighted part)

How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that	• Story Board • Cause and Effect • Fish and Bone • Concept mapping	• Past paper questions • Discussion on E-Marking Notes

question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating) • Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources	• Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration	• AKU-EB Digital Learning Solution powered by Knowledge Platform

Any Additional Suggestion:
Teachers are advised to use animated videos of magnetic and optical storage for better understanding of the topic.

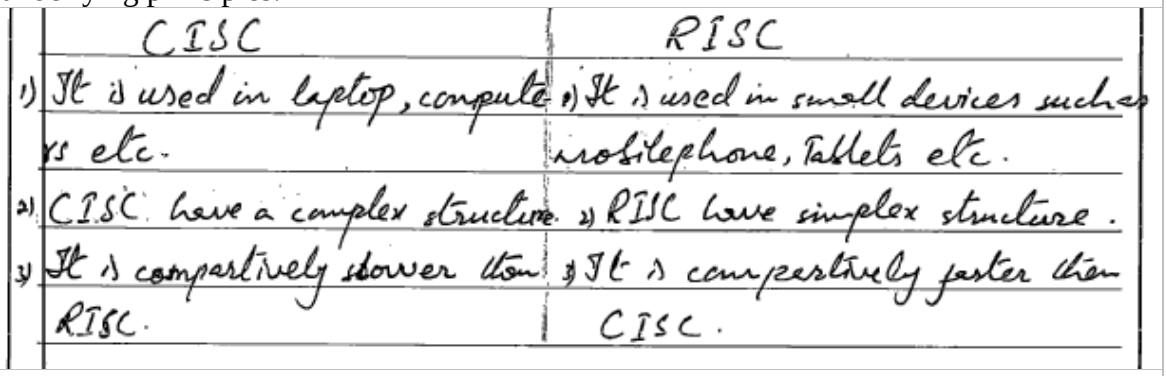
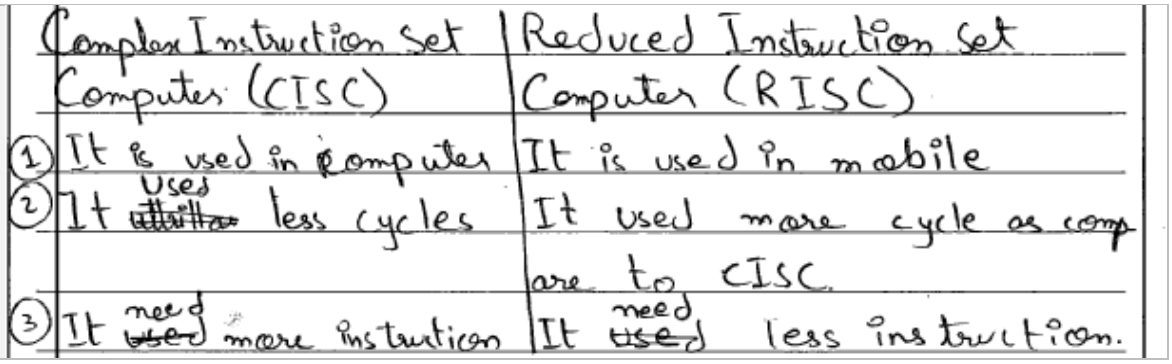
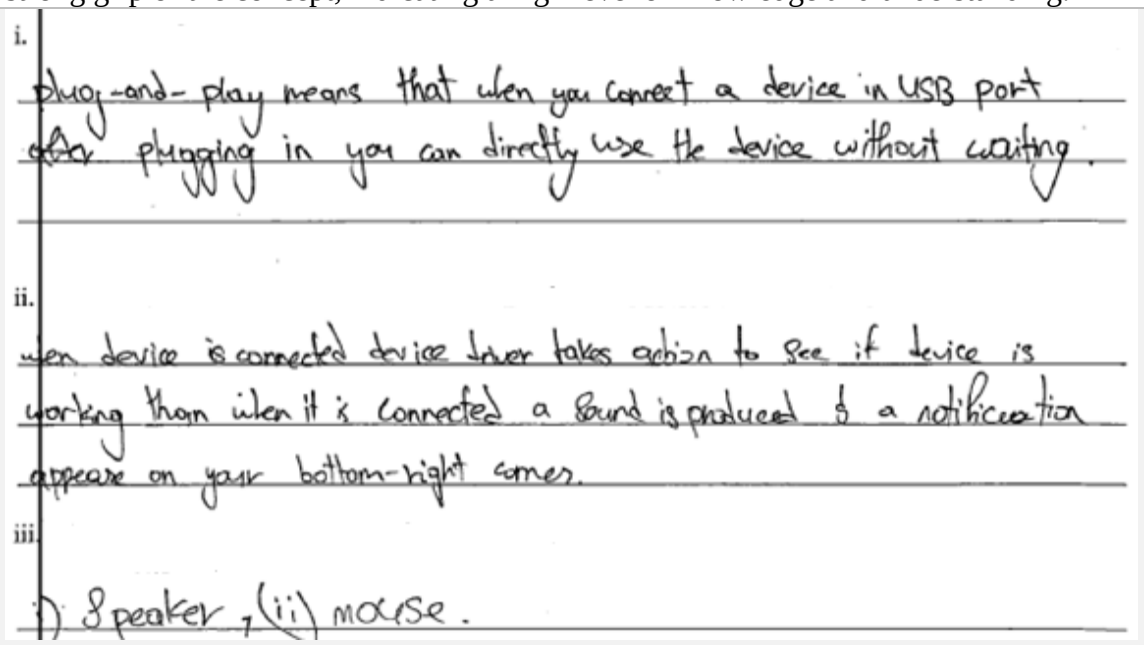
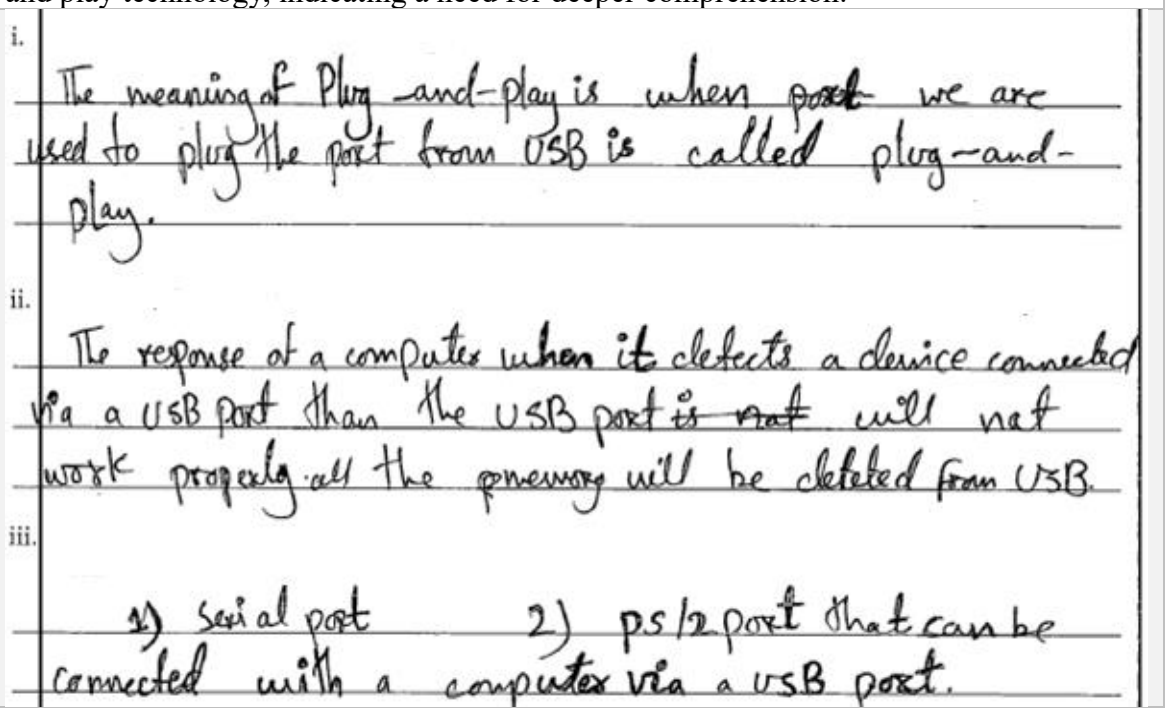
Question No. 3	
Question Text	Write any THREE differences between Complex Instruction Set Computer (CISC) and Reduced Instruction Set Computer (RISC) architectures.
SLO No.	3.2.4
SLO Text	Differentiate between Complex Instruction Set Computer (CISC) and Reduced Instruction Set Computer (RISC) architecture.
Max Marks	3
Cognitive Level	U
Checking Hints	1 mark for each correct difference (Any THREE required)
Overall Performance	The overall response to this question was average. Some candidates demonstrated a strong understanding of the correct differences between CISC and RISC. However, there were candidates who gave general statements or inaccurate information in the differences rather than giving differences on the basis of properties of CISC and RISC. Candidates can go through animated videos to see the working of both computer architectures.
Description of Better Responses	Better responses correctly identified the distinctions between CISC and RISC architectures on the basis of structure and speed with precision, showcasing a clear command of the underlying principles.
Image of Better Response	
Description of Weaker Responses	In weaker responses, the fundamental distinctions between CISC and RISC architectures were mostly inaccurately explained. Mostly candidates wrote acronyms of CISC and RISC or have written that one need more instruction while other need less instruction which showed the lack of understanding of the concept.

Image of Weaker Response	

Suggestions for improvement (Highlighted part)

How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating) • Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources	• Story Board • Cause and Effect • Fish and Bone • Concept mapping • Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform
Any Additional Suggestion: Teachers are advised to show some videos on CISC and RISC architectures using web links such as https://www.youtube.com/watch?v=a4kgtygCZBc or https://www.youtube.com/watch?v=6Rxade2nEjk for better understanding of the topic.		

Question No. 4	
Question Text	USB port is a plug-and-play port. i. Describe the meaning of plug-and-play. ii. Describe the response of a computer when it detects a device connected via a USB port. List the names of any TWO devices, other than USB flash drive, that can be connected with a computer via a USB port.
SLO No.	4.2.1
SLO Text	Differentiate among different types of ports, i.e. serial port, parallel port, PS/2 port, Universal Serial Bus (USB) port, fire wire port and High Definition Multimedia Interface (HDMI) port.
Max Marks	3
Cognitive Level	U
Checking Hints	(a) 1 mark for description (b) 1 mark for correct answer (c) 1 mark for any two names 1 mark will be awarded on writing only one name as well.

Overall Performance	Overall, the responses to this question were average as it uses the term "plug and play" and the devices that utilise this feature, aside from USB. However, the responses received were mixed, with varying levels of accuracy and correctness. Some candidates wrote the meaning of plug and play with its examples correctly while some described the response of a computer on detecting plug and play device incorrectly resulting in loss of marks.
Description of Better Responses	The candidates did well. Their responses showed accurate description of "plug and play" devices showing how devices can be connected to a computer system without requiring manual configuration. Candidates also provided correct examples which demonstrated a strong grip of the concept, indicating a high level of knowledge and understanding.
Image of Better Response	 i. plug-and-play means that when you connect a device in USB port after plugging in you can directly use the device without waiting. ii. when device is connected device driver takes action to see if device is working than when it is connected a sound is produced & a notification appears on your bottom-right corner. iii. i) Speaker, (ii) mouse.
Description of Weaker Responses	The candidates' responses showcased a weak understanding of the "plug and play" concept, which is evident from the inaccurate definition and example provided like serial port and PS2 port etc. The explanation lacks precision in reflecting the working of plug and play technology, indicating a need for deeper comprehension.
Image of Weaker Response	 i. The meaning of Plug-and-play is when ~~port~~ we are used to plug the port from USB is called plug-and-play. ii. The response of a computer when it detects a device connected via a USB port than the USB port ~~is not~~ will not work properly all the ~~memory~~ will be deleted from USB. iii. 1) Serial port 2) ps/2 port that can be connected with a computer via a USB port.

Suggestions for improvement (Highlighted part)

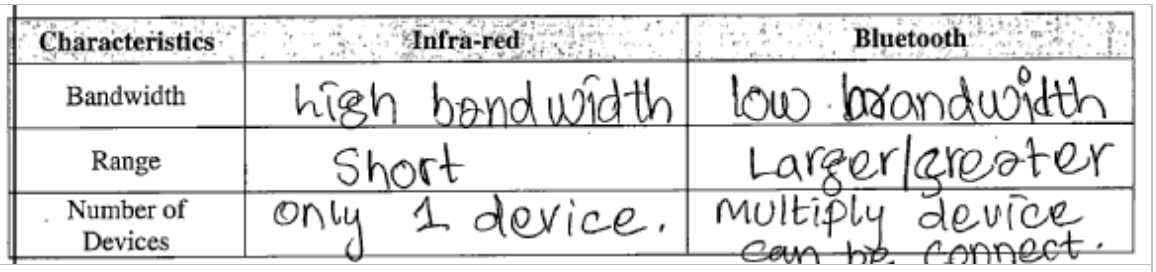
How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating) • Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources	• Story Board • Cause and Effect • Fish and Bone • Concept mapping • Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform
Any Additional Suggestion: Teachers are advised to show plug and play devices to the candidates and its working practically, this will help them to understand the concept in detail.		

Question No. 5

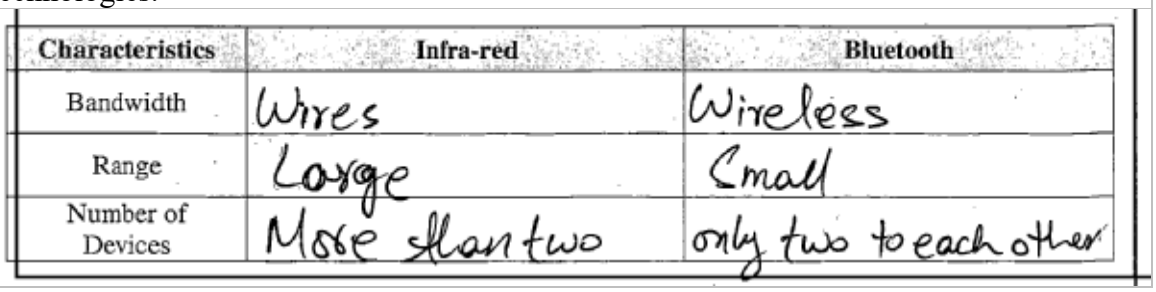
Question Text	Differentiate between infrared and Bluetooth based on the given characteristics.

Characteristics	Infrared	Bluetooth
Bandwidth		
Range		
Number of Devices		

SLO No.	6.2.1
SLO Text	Compare the types of short distance wireless technologies, i.e. Wireless Fidelity (Wi-Fi), Worldwide Interoperability for Microwave Access (WiMAX), Bluetooth and Infra-red.
Max Marks	3
Cognitive Level	U
Checking Hints	1 mark for each difference. (THREE required)
Overall Performance	The cohort's overall response to the question related to infrared and bluetooth was good. The candidates demonstrated good performance by providing accurate and relevant details about these technologies. However, certain responses were incorrect with unrelated and inaccurate information.
Description of Better Responses	Most of the candidates' responses effectively described the bandwidth, number of devices that can be connected and range attributes of infrared and bluetooth technologies. This showed the candidates' good comprehension and proficiency in this topic.

Image of Better Response	

Characteristics	Infra-red	Bluetooth
Bandwidth	high bandwidth	low bandwidth
Range	Short	Larger/greater
Number of Devices	only 1 device.	multiply device can be connect.

Description of Weaker Responses	Weaker responses displayed inaccuracies concerning the bandwidth and range of infrared and Bluetooth technologies. Candidates showed misconceptions by writing incorrect information regarding range of the given technologies. They also showed incorrect information in writing the number of devices that can be connected using given technologies.
Image of Weaker Response	

Characteristics	Infra-red	Bluetooth
Bandwidth	Wires	Wireless
Range	Large	Small
Number of Devices	More than two	only two to each other

Suggestions for improvement (Highlighted part)

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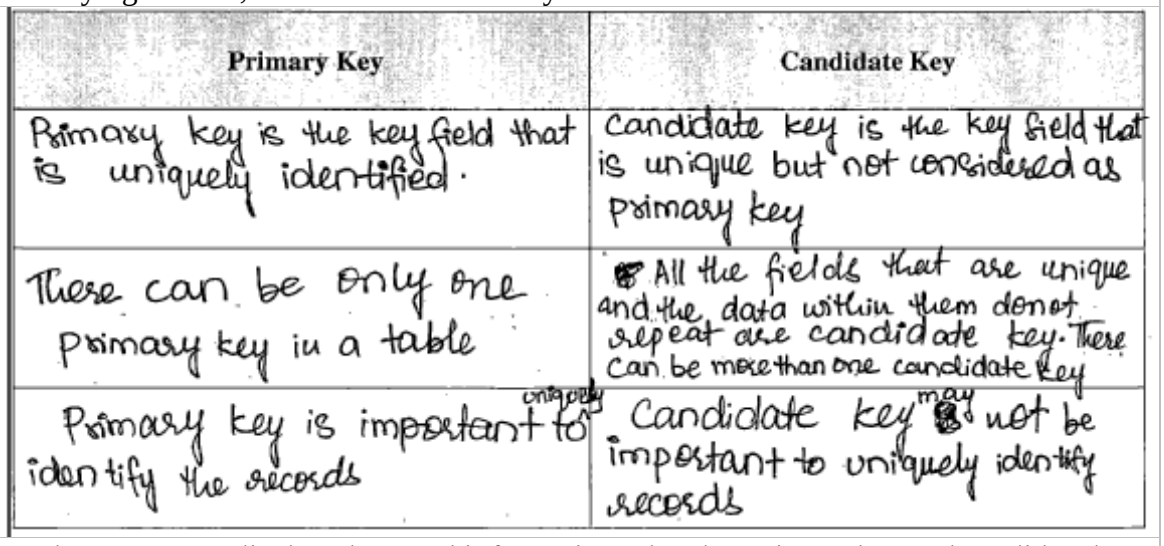
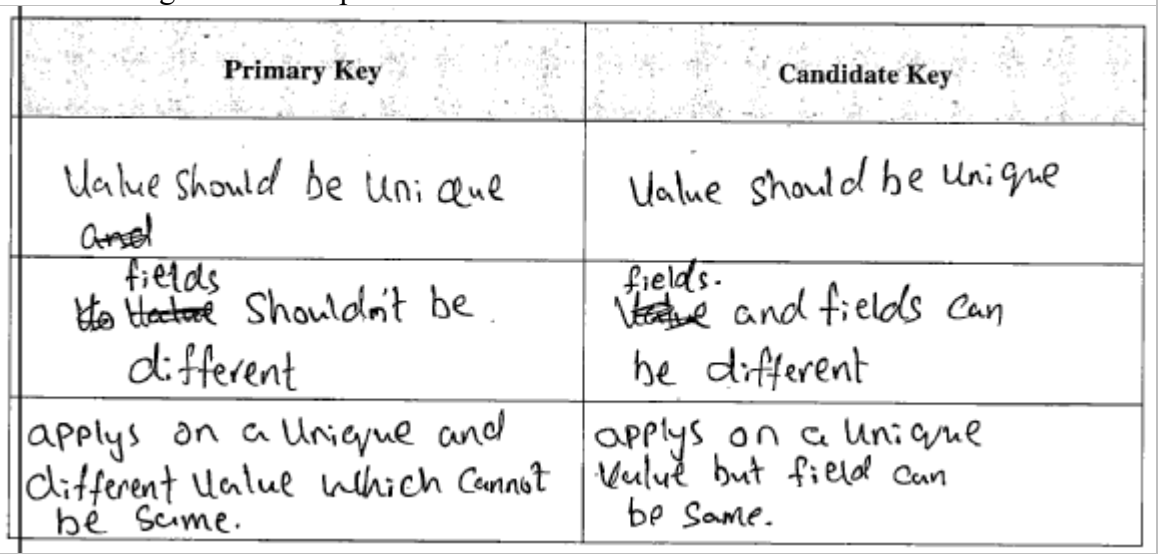
Any Additional Suggestion:
Giving examples by real-life application such as remote of a TV and mobile phones to show the candidates the range, speed and other properties of infrared and bluetooth technologies.

Question No. 6	
Question Text	Differentiate between primary key and candidate key.
SLO No.	7.4.5
SLO Text	Differentiate among primary key, candidate key, alternate key, secondary key and foreign key.
Max Marks	3
Cognitive Level	U

Checking Hints	1 mark for writing correct difference. (Any THREE required)
Overall Performance	The cohort's response to this question displayed a mixed outcome. Some candidates showed accurate explanations of primary and candidate keys, defining a primary key as a unique identifier for each database record, ensuring data integrity, while some candidates presented inappropriate or erroneous details about these concepts.
Description of Better Responses	Candidates accurately differentiated between the primary key and candidate key. They explained that there was only one primary key in a table, whereas there could be multiple candidate keys in a table. The primary key was described as crucial for uniquely identifying records, while the candidate key was not.
Image of Better Response	
Description of Weaker Responses	Weaker responses displayed general information related to primary key and candidate key. Some candidates wrote the same points for both the terminologies showing the lack of understanding of the concept.
Image of Weaker Response	

Suggestions for improvement (Highlighted part)

How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating)	• Story Board • Cause and Effect • Fish and Bone • Concept mapping • Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform

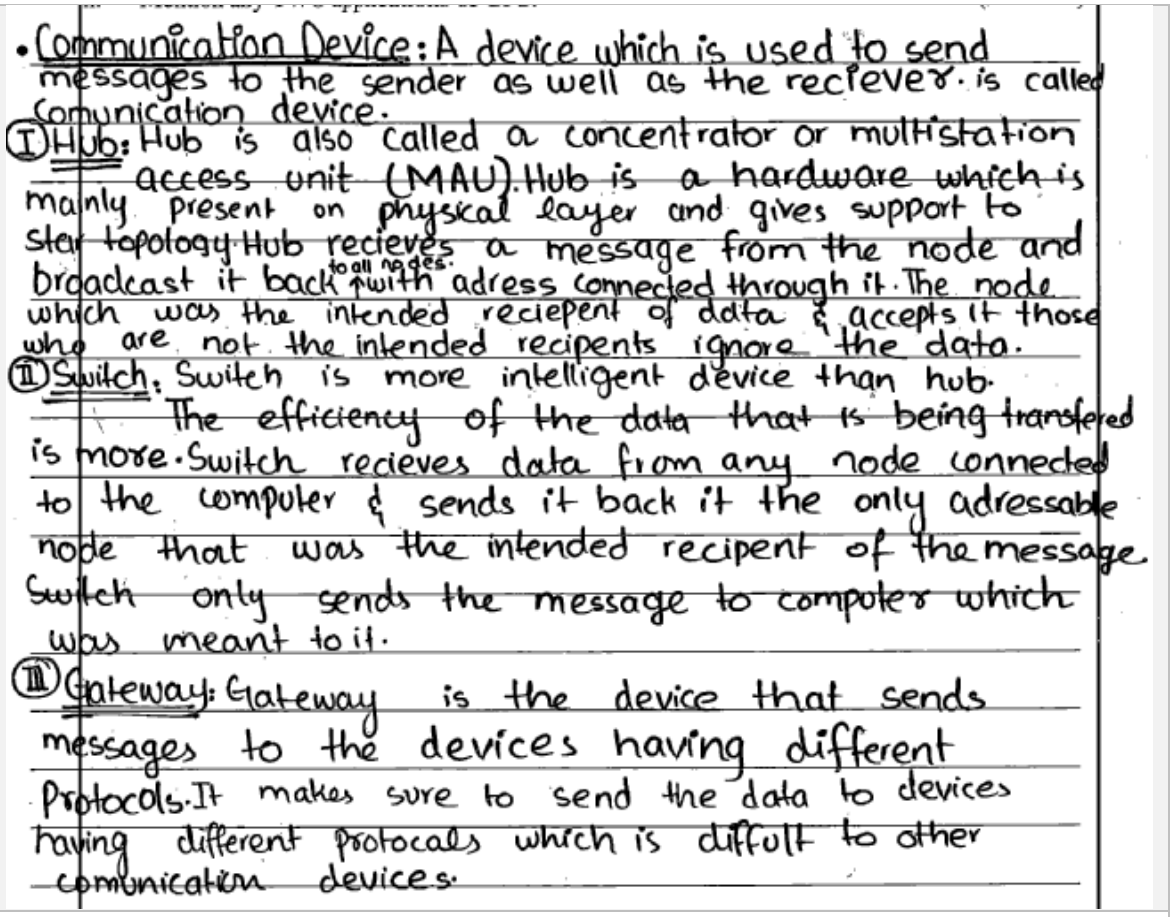
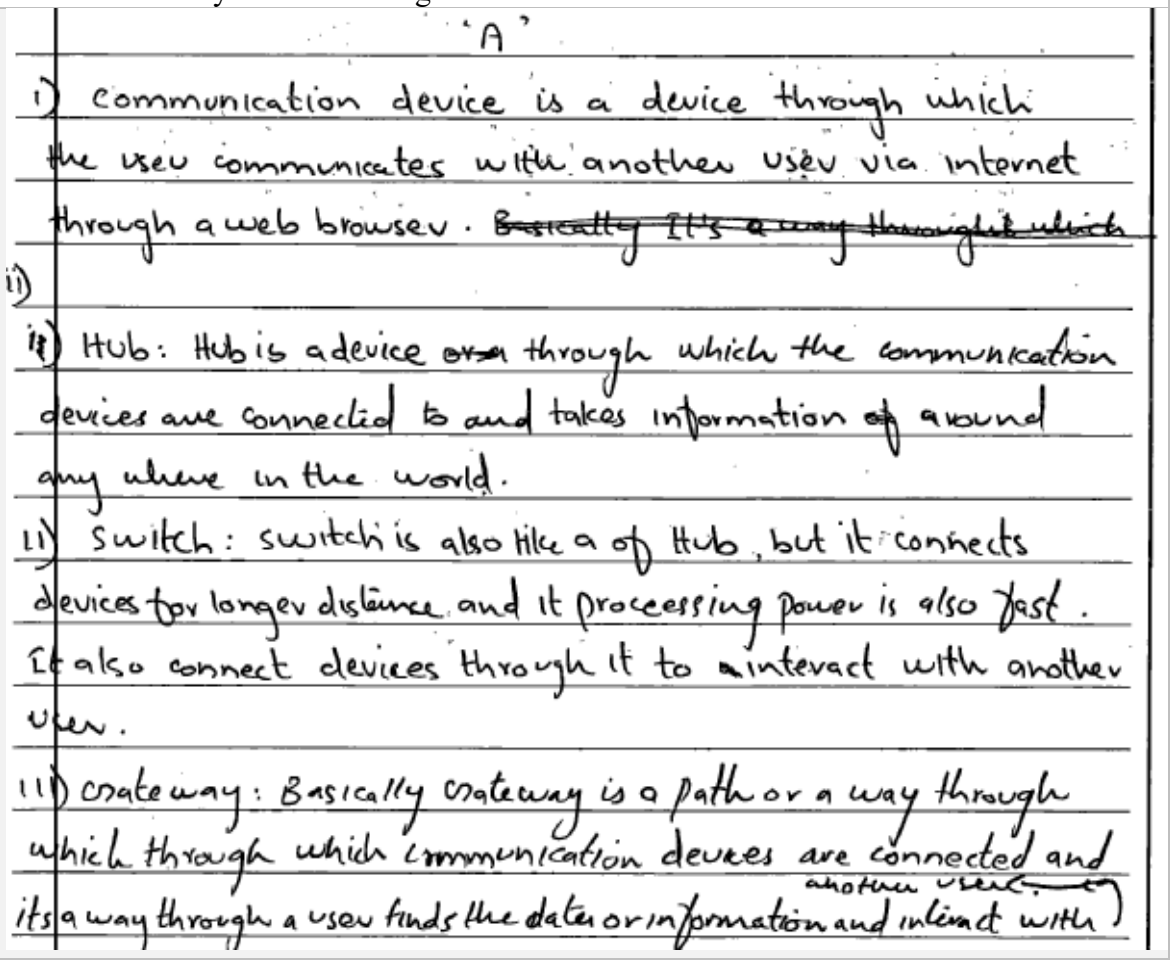
• Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources		

Any Additional Suggestion:
Teachers are advised to give more practical examples using different database tables such as student information table and ask candidates to identify the different type of keys in that table.

Extended Response Questions (ERQs)

These questions offered a choice between part **a** and **b**.

Question No. 7a	
Question Text	i. Define the term, 'communication device'. ii. Describe the following communication devices: I. Hub II. Switch III. Gateway
SLO No.	5.1.4
SLO Text	Discuss the role of the four data communication devices, i.e. hub, switch, router and gateway.
Max Marks	7
Cognitive Level	U
Checking Hints	1 mark for the definition of communication device. 1 mark for each highlighted point in the description of Hub (Any TWO required). 1 mark for each highlighted point in the description of Switch. (Any TWO required). 1 mark for each highlighted point in the description of Gateway. (Any TWO required).
Overall Performance	As this was an ERQ, so most of the candidates attempted this part. The candidates' response to this question was notably above average. Majority of candidates effectively defined communication device and offered satisfactory explanations for hub, switch and gateways. However, some of the candidates showed challenges in understanding the concepts and expressing their thoughts coherently.
Description of Better Responses	The candidates' responses were notable for their accurate definitions of communication devices. They also provided descriptions of hubs, switches and gateways, including mentioning another name for a hub, which is the multistation access unit (MAU). They explained how gateways send data packets using various protocols and mentioned that switches are intelligent devices.

Image of Better Response	 • Communication Device: A device which is used to send messages to the sender as well as the recieved. is called comunication device. (I) Hub: Hub is also called a concentrator or multistation access unit (MAU). Hub is a hardware which is mainly present on physical layer and gives support to star topology. Hub recieves a message from the node and broadcast it back to all nodes with adress connected through it. The node which was the intended reciepent of data & accepts it those who are not the intended recipents ignore the data. (II) Switch: Switch is more intelligent device than hub. The efficiency of the data that is being transfered is more. Switch recieves data from any node connected to the computer & sends it back it the only adressable node that was the intended recipent of the message. Switch only sends the message to computer which was meant to it. (III) Gateway: Gateway is the device that sends messages to the devices having different Protocols. It makes sure to send the data to devices having different protocals which is diffult to other comunication devices.
Description of Weaker Responses	The candidates' responses showed weaknesses as they included inappropriate and irrelevant information, indicating misconceptions about the topic. Some candidates incorrectly stated that hubs and switches are the same, while others described gateways as a medium or way to send messages.
Image of Weaker Response	 'A' i) communication device is a device through which the user communicates with another user via internet through a web browser. ~~Basically It's a way throughout which~~ ii) i) Hub: Hub is a device ~~or a~~ through which the communication devices are connected to and takes information of around any where in the world. ii) Switch: switch is also like a of Hub, but it connects devices for longer distance and it processing power is also fast. It also connect devices through it to interact with another user. iii) Gateway: Basically Gateway is a path or a way through which through which communication devices are connected and its a way through a user finds the data or information and interact with another user.

Suggestions for improvement (Highlighted part)

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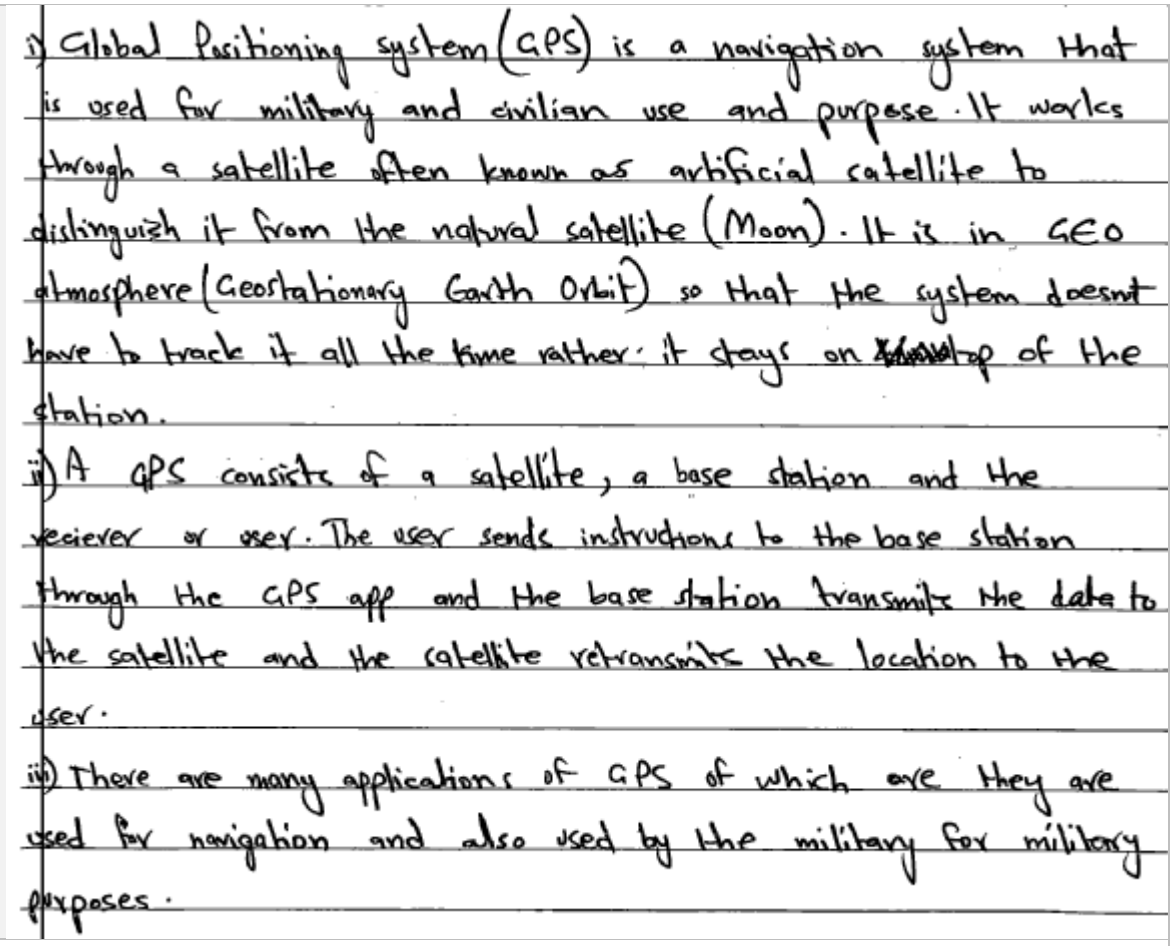
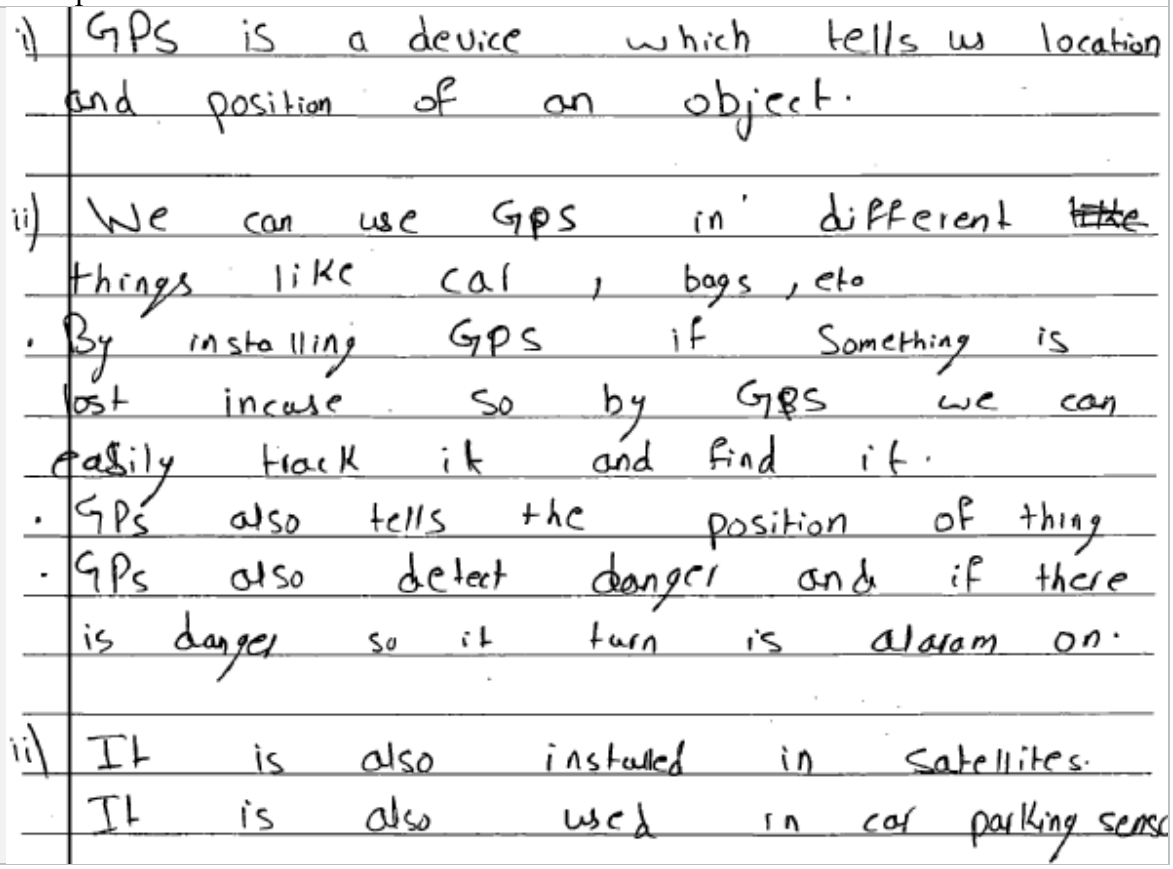
Any Additional Suggestion: Teachers are advised to make groups of candidates and ask them to identify different network devices that present around us and differentiate them on the basis of their functionalities.		

Question No. 7b	
Question Text	i. Define global positioning system (GPS). ii. Describe the components of GPS. iii. Mention any TWO applications of GPS.
SLO No.	6.3.4
SLO Text	Explain Global Positioning System (GPS).
Max Marks	7
Cognitive Level	U
Checking Hints	1 mark for the definition of GPS. 1 mark for naming THREE components of GPS. 1 mark will also be awarded if TWO components are named. No mark will be awarded on writing only one name. 1 mark for describing each component. (THREE required) 1 mark for writing the applications of GPS. (Any TWO required)
Overall Performance	As this was an EQR, so very few candidates attempted this part with below average responses. A small number of candidates provided accurate details related to the GPS system and its practical applications. whereas, some responses displayed incompleteness and tangential references, indicating a lack of understanding for these concepts.
Description of Better Responses	The candidates' responses were excellent as they provided a thorough explanation of the basic aspects of the GPS system, including its components and applications. They explained how GPS functions with base stations and satellites, as well as how it provides information. Additionally, they discussed its use in navigation systems and the military.

Image of Better Response	 i) Global Positioning system (GPS) is a navigation system that is used for military and civilian use and purpose. It works through a satellite often known as artificial satellite to distinguish it from the natural satellite (Moon). It is in GEO atmosphere (Geostationary Earth Orbit) so that the system doesnt have to track it all the time rather it stays on top of the station. ii) A GPS consists of a satellite, a base station and the reciever or user. The user sends instructions to the base station through the GPS app and the base station transmits the data to the satellite and the satellite retransmits the location to the user. iii) There are many applications of GPS of which are they are used for navigation and also used by the military for military purposes.
Description of Weaker Responses	The candidates' responses were inadequate, featuring inaccuracies and demonstrating a limited comprehension of the relevant concepts. Some candidates mentioned the use of GPS in its definition, components, and application, resulting in marks only for the examples.
Image of Weaker Response	 i) GPS is a device which tells us location and position of an object. ii) We can use GPS in different ~~title~~ things like car, bags, etc . By installing GPS if Something is lost incase so by GPS we can easily track it and find it. . GPS also tells the position of thing . GPS also detect danger and if there is danger so it turn is alarm on. ii) It is also installed in Satellites. It is also used in car parking sens

Suggestions for improvement (Highlighted part)

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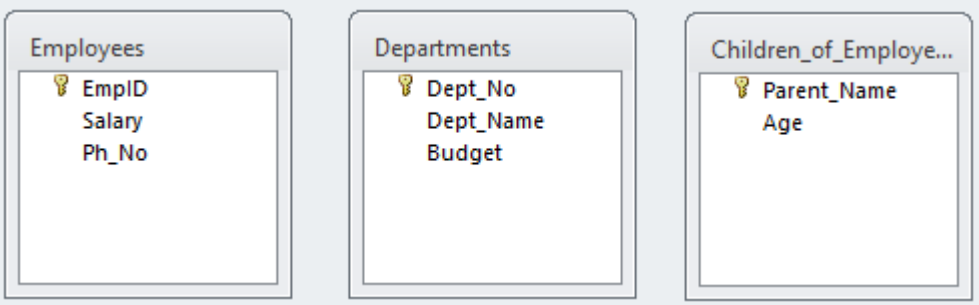
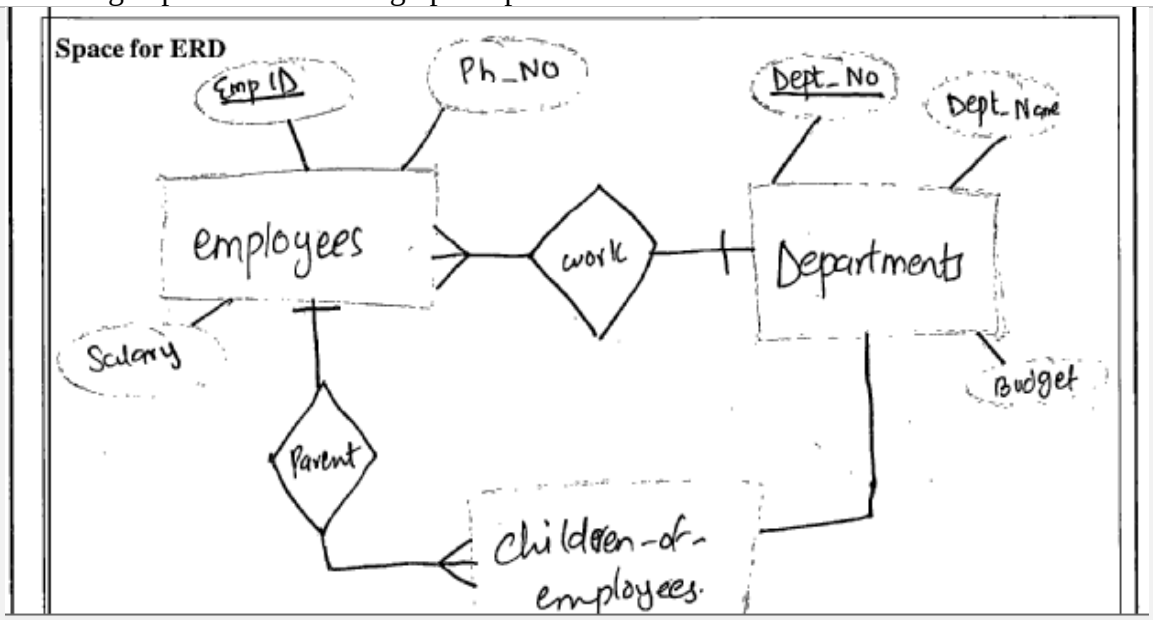
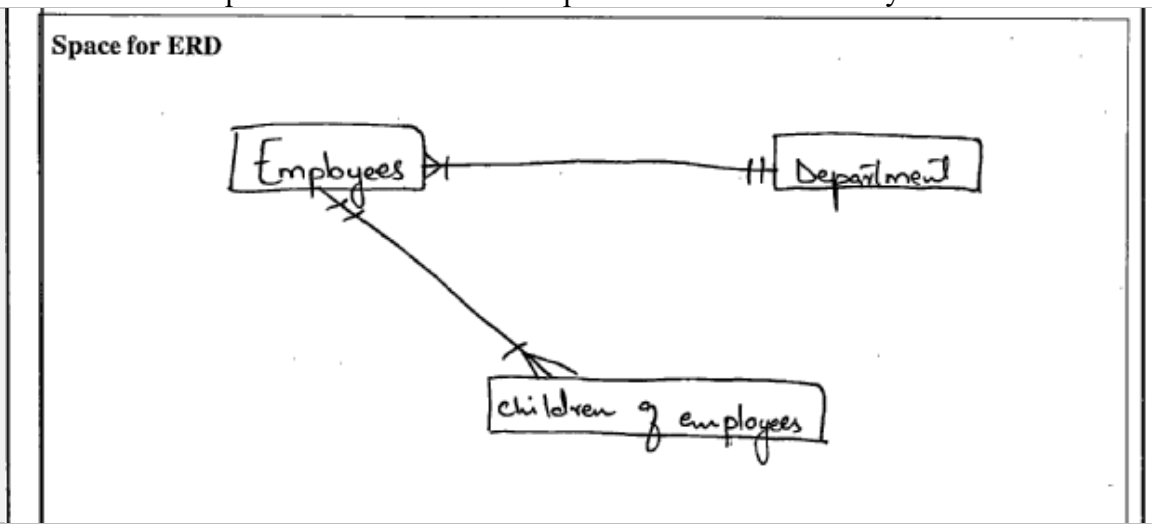
Any Additional Suggestion:
Teachers are advised to show the audio video resources on the working of GPS. A couple of links are provided for the reference.
https://www.youtube.com/watch?v=wCcARVbL_Dk
https://www.youtube.com/watch?v=AlHPDRQ08jU

Question No. 8a	
Question Text	Consider the given image showing three tables in an MS Access database of a company.  A number of employees work in each department of the company. Each department is managed by an employee. Each child of an employee is identified by the employee's name. Furthermore, the company has the policy that only one parent can work for the company. Draw an entity-relationship diagram (ERD) for this database.
SLO No.	7.4.5
SLO Text	Draw entity relationship (ER) diagram for different scenarios.
Max Marks	7
Cognitive Level	A
Checking Hints	1 mark for drawing all THREE entities. 1 mark for drawing attributes of all EIGHT entities. 1 mark for correctly underlining the all THREE primary keys. 1 mark for correctly writing all THREE relationship text. 1 mark for correctly writing each relationship type (THREE Required)
Overall Performance	As this was an ERQ, so few candidates attempted this part. The responses to this question were below average exhibiting limitations in the understanding of key concepts

	of database. Some candidates made inaccurate entity relationship diagram (ERD), which highlighted an area of deficiency in understanding and application of database concepts. Notably, no candidate accurately made the ERD, indicating a collective need for improved comprehension.
Description of Better Responses	The candidates' responses revealed a better understanding of table relationships in the database. It showed important connections and associations between tables, showcasing a better grasp of database design principles.
Image of Better Response	
Description of Weaker Responses	The candidates' responses reflected a very limited grip of the topics, indicating weaknesses in understanding entity relationship diagrams (ERD) and their application. Most candidates did not mention the entities correctly or failed to establish the relationship. Those who attempted to create a relationship did not do it so correctly.
Image of Weaker Response	

Suggestions for improvement (Highloghted part)

How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating) • Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources	• Story Board • Cause and Effect • Fish and Bone • Concept mapping • Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform
Any Additional Suggestion: N/A		

Question No. 8b

Question Text

Consider the given table named as **Professors**.

Prof_ ID	First_Name	Last_Name	Age	Experience_in_ Years	Specialisation
P101	Dilawar	Khan	47	22	Accounting
P102	Sana	Ahmed	52	30	Marketing
P103	Faisal	Arbab	45	23	Finance

Write MS Access SQL queries to

i. create this table with appropriate data types and with the following field lengths. Set Prof_ID as primary key.

Field Name	Field_Length
Prof_ID	5
First_Name	20
Last_Name	15
Specialisation	25

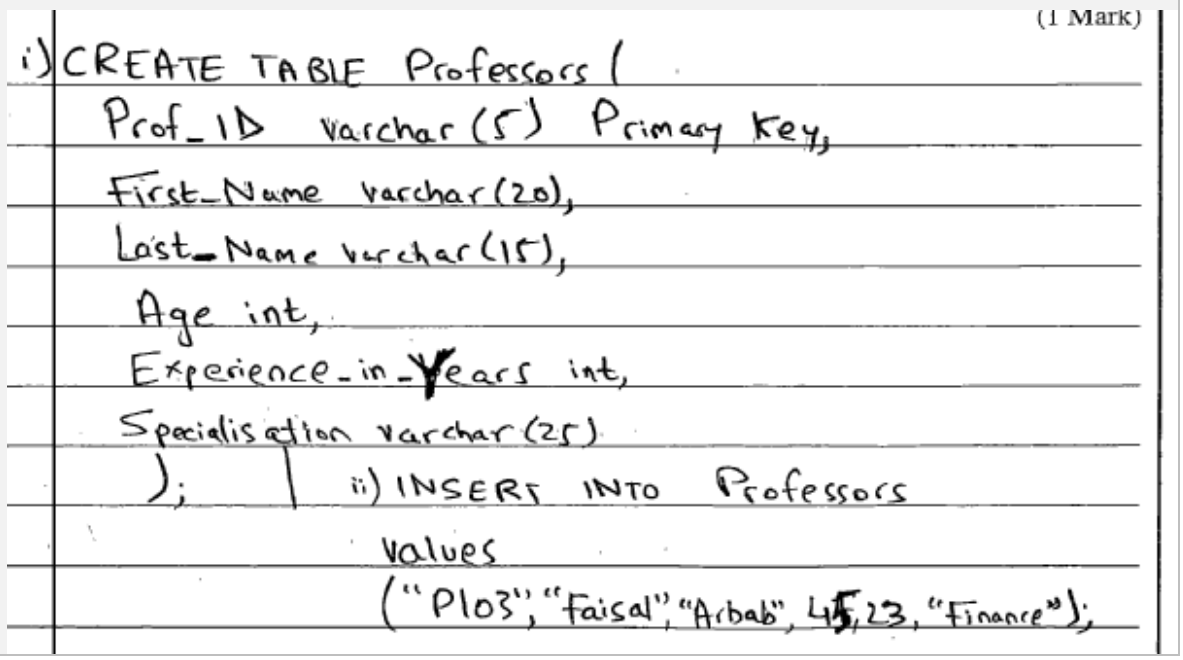
ii. insert last record shown in the table.

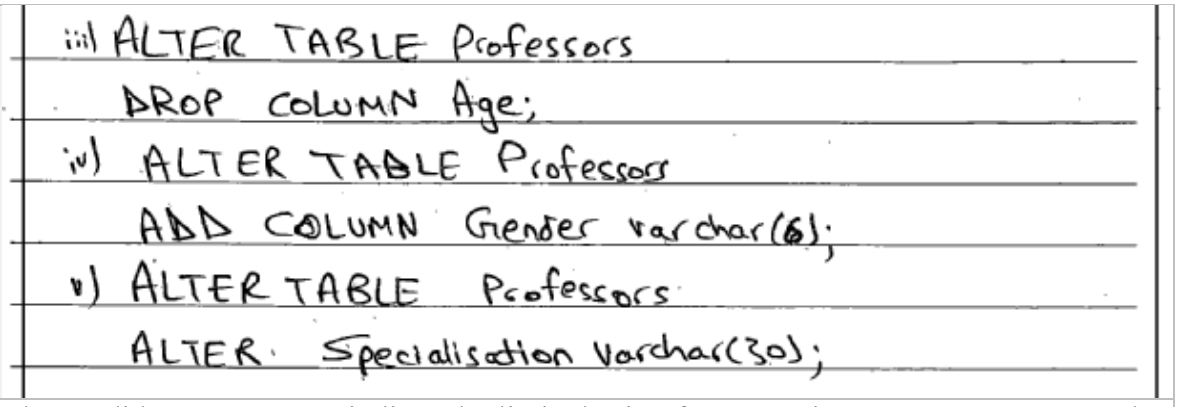
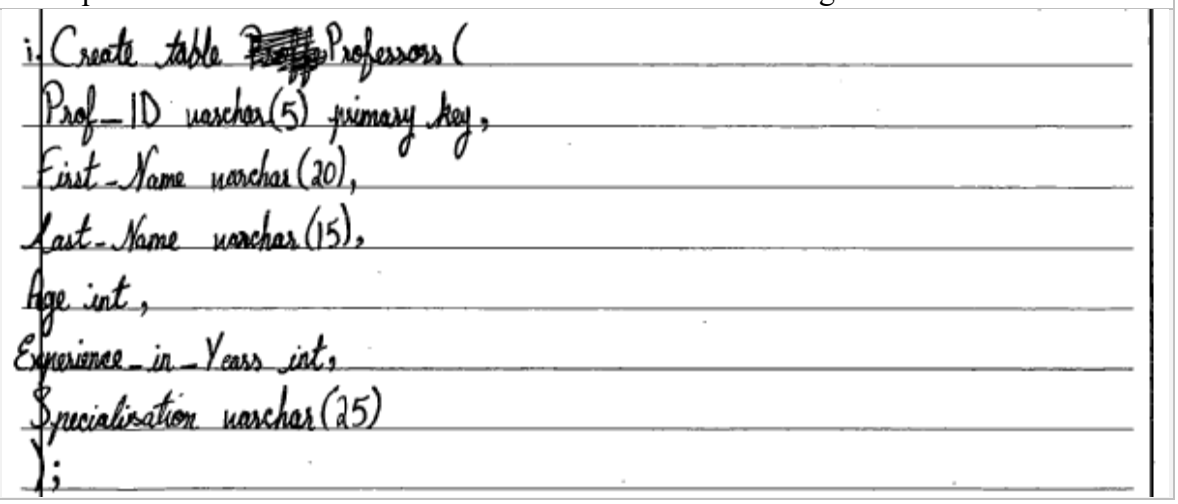
iii. remove **Age** field from the table.

iv. add **Gender** field in the table having field length of 6.

v. change the field length of **Specialisation** so that it should accept up to 30 characters.

SLO No.	8.5.2
SLO Text	Write the simple SQL (DDL) queries to perform the following: a. create table b. add primary key c. alter table d. drop table
Max Marks	7
Cognitive Level	A

Checking Hints	(i) 1 mark → CREATE TABLE Professors 1 mark → Prof_ID CHAR(5) NOT NULL PRIMARY KEY, 1 mark → First_Name CHAR(20), Last_Name CHAR(15), Specialisation CHAR(25)); Age INTEGER, Experience_in_Years INTEGER, (ii) 1 mark → INSERT INTO Professors Values ('P103', 'Faisal', 'Arbab', 42, 13, 'Finance'); (iii) 1 mark → ALTER TABLE Professors DROP COLUMN Age; (iv) 1 mark → ALTER TABLE Professors ADD COLUMN Gender CHAR(6); (v) 1 mark → ALTER TABLE Professors ALTER COLUMN Specialisation Char(30);
Overall Performance	As this was an ERQ, mostly candidates attempted this part. The overall response falls within an average spectrum. Some candidates understood data types well and made the right queries, while others made mistakes in their commands, which caused them to get fewer points. It is clear that quite a few candidates might not have studied the application-level aspects of databases enough.
Description of Better Responses	The candidates' answers demonstrated that they understood how to make SQL queries using the right data types. They included data definition language (DDL) statements in their queries, which showed that they knew SQL programming accurately.
Image of Better Response	 (1 Mark) i) CREATE TABLE Professors (Prof_ID varchar(5) Primary key, First_Name varchar(20), Last_Name varchar(15), Age int, Experience_in_Years int, Specialisation varchar(25)); ii) INSERT INTO Professors values ("P103", "faisal", "Arbab", 45, 23, "Finance");

	
Description of Weaker Responses	The candidates' responses indicated a limited grip of constructing SQL query commands, suggesting a lack of proficiency and understanding in this area. Candidates wrote incomplete commands to create the database table based on the given criteria.
Image of Weaker Response	

Suggestions for improvement (Highlighted part)

How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing or evaluating) • Go through the past paper questions on that particular concept • Refer to the resource guide for extra resources	• Story Board • Cause and Effect • Fish and Bone • Concept mapping • Audio Visual resources • Think, pair and share • Questioning Technique (Socratic approach) • Practical Demonstration	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform
Any Additional Suggestion: N/A		

Annexure A: Pedagogies Used for Teaching the SLOs

Pedagogy: Storyboard

Description: A visual pedagogy that uses a series of illustrated panels to present a narrative, encouraging creativity and critical thinking. It helps learners organise ideas, sequence events, and comprehend complex concepts through storytelling.

Example: In a Literature class, students are tasked with creating storyboards to visually retell a novel. They draw key scenes, write captions, and present their stories to the class, enhancing their reading comprehension and fostering their imagination.

Pedagogy: Cause and Effect

Description: This pedagogy explores the relationships between actions and consequences. By analysing cause-and-effect relationships, learners develop a deeper understanding of how events are interconnected and how one action can lead to various outcomes.

Example: In a History class, students study the causes and effects of the Industrial Revolution. They research and discuss how technological advancements in manufacturing led to significant societal changes, such as urbanisation and labour reform movements.

Pedagogy: Fish and Bone

Description: A method that breaks down complex topics into main ideas (the fish) and supporting details (the bones). This visual approach enhances comprehension by highlighting essential concepts and their relevant explanations.

Example: During a Biology class on human anatomy, the teacher uses the fish and bone technique to teach about the human skeletal system. Teacher presents the main components of the human skeleton (fish) and elaborates on each bone's structure and function (bones).

Pedagogy: Concept Mapping

Description: An effective way to visually represent relationships between ideas. Learners create diagrams connecting key concepts, aiding in understanding the overall structure of a subject and fostering retention.

Example: In a Psychology assignment, students use concept mapping to explore the various theories of personality. They interlink different theories, such as Freud's psychoanalysis, Jung's analytical psychology, and Bandura's social-cognitive theory, to see how they relate to each other.

Pedagogy: Audio Visual Resources

Description: Incorporating multimedia elements like videos, images, and audio into lessons. This approach caters to different learning styles, making educational content more engaging and memorable.

Example: In a General Science class, the teacher uses a documentary-style video to teach about the solar system. The video includes stunning visual animations of the planets, interviews with astronomers, and background music, enhancing students' interest and understanding of space.

Pedagogy: Think, Pair, and Share

Description: A collaborative learning technique where students ponder a question or problem individually, then discuss their thoughts in pairs or small groups before sharing with the entire class. It fosters active participation, communication skills, and diverse perspectives.

Example: In a Literature in English class, the teacher poses a thought-provoking question about a novel's moral dilemma. Students first reflect individually, then pair up to exchange their opinions, and finally participate in a lively class discussion to explore different viewpoints.

Pedagogy: Questioning Technique (Socratic Approach)

Description: Based on Socratic dialogue, this method stimulates critical thinking by posing thought-provoking questions. It encourages learners to explore ideas, justify their reasoning, and discover knowledge through a process of inquiry.

Example: In an Ethics class, the instructor uses the Socratic approach to lead a discussion on the meaning of justice. By asking a series of probing questions, the students engage in a deeper exploration of ethical principles and societal values.

Pedagogy: Practical Demonstration

Description: A hands-on approach where learners observe real-life applications of theories or skills. Practical demonstrations enhance comprehension, skill acquisition, and problem-solving abilities by bridging theoretical concepts with real-world scenarios.

Example: In a Food and Nutrition class, the instructor demonstrates the proper technique for filleting a fish. Students observe and then practice the skill themselves, learning the practical application of knife skills and culinary precision.

(**Note:** The examples provided in this annexure serve as illustrations of various pedagogies. It is important to understand that these pedagogies are versatile and can be applied across subjects in numerous ways. Feel free to adapt and explore these techniques creatively to enhance learning outcomes in your specific context.)

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