Aga Khan University Examination Board

Notes from E-Marking Centre on SSC-I Physics Annual Examination 2023

Introduction

This document has been produced for the teachers and candidates of Secondary School Certificate (SSC) Part I Physics. It contains comments on candidates' responses to the 2023 SSC Part 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.

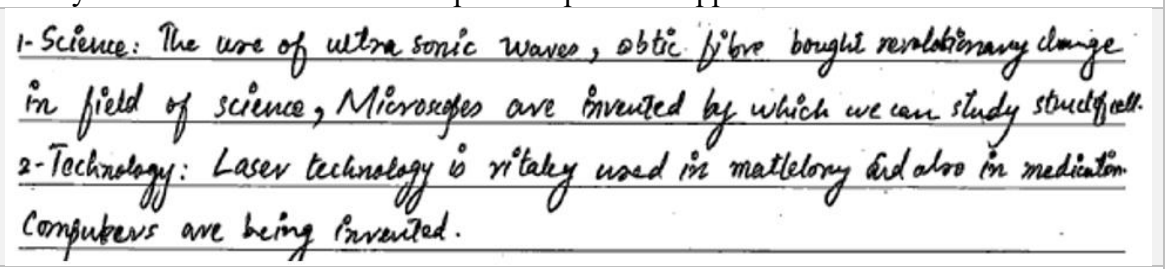
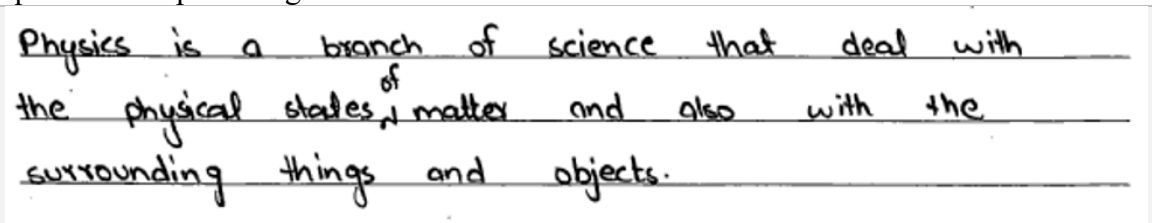
General Observations

This year, candidates performed well on questions related to importance of physics, moment of force, Newton's law of gravitation, kinematics and dynamics. Whereas low-scoring candidates struggled in questions based on conversion of different scales of temperature, concept of efficiency and state of matter.

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

Detailed Comments

Constructed Response Questions (CRQs)

Question No. 1	
Question Text	Write any TWO points about the importance of physics in science and technology.
SLO No.	1.1.1
SLO Text	Describe the importance of physics in science, technology and society.
Max Marks	02
Cognitive Level	*K
Checking Hints	1 mark for each point (Any 2 required)
Overall Performance	Majority of the cohort demonstrated a good understanding of the introductory concepts of physics and their applications in society and various scientific and technological areas, resulting in high scores. Like the electric power we use in our homes and an industry generated at power stations is produced on the principle of induced e.m.f. due to changing flux of the magnetic field, lasers which are used in medical science, metallurgy, astronomy and defence derive their principles from atomic physics, electronic appliances owe to the research in solid state physics, automobile technology is based on the principles of thermodynamics and radar technology owes its foundation to the principles of reflection and detection of electromagnetic waves. However, some candidates with limited knowledge in these aspects received lower marks or none.
Description of Better Responses	Better responses demonstrated a sound understanding of the various uses of physics in both science and technology. Candidates accurately identified and described how physics plays a pivotal role in advancing scientific knowledge and driving technological innovations. By providing well-reasoned explanations, these candidates showcased their ability to connect theoretical concepts with practical applications.
Image of Better Response	
Description of Weaker Responses	In weaker responses, candidates provided irrelevant wording or points, and some even wrote the definition of physics instead of discussing its uses. To enhance their performance, candidates should focus on understanding the specific demands of the question and providing relevant information.
Image of Weaker Response	

Suggestions for improvement (Highlighted part)

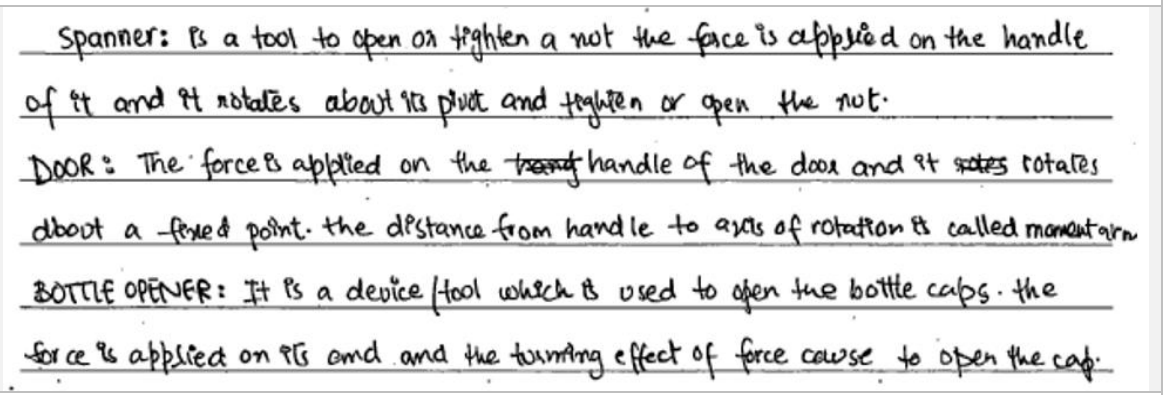
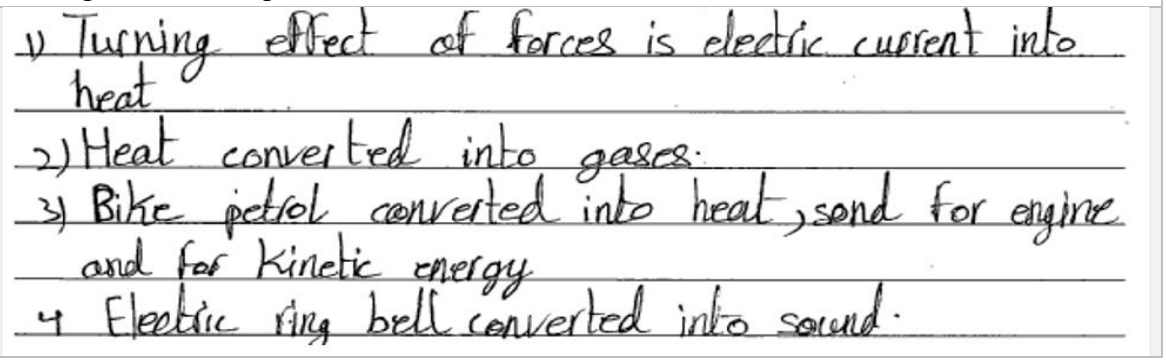
How to Approach SLO	Pedagogy** Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like 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 https://akueb.knowledgeplatform.com/login

Any Additional Suggestion:

- Teacher should initiate the topic with connecting the concept with daily life. Develop connections using everyday items with its usability while incorporating physics laws and theory.
- Encouraging exploration of practical applications of physics in everyday life and different scientific fields can foster a deeper comprehension and showcase the significance of physics in shaping the modern world. Providing additional resources such as charts related to the modern devices and models of equipment whereby different processes of making and using different electronic instruments are shown which will facilitate overall development and lead to improved performance in future assessments.

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

Question No. 2	
Question Text	Write any THREE examples of turning effect of force from daily life.
SLO No.	4.1.2
SLO Text	Explain the turning effect of force by relating it to everyday life.
Max Marks	03
Cognitive Level	*K
Checking Hints	1 mark for each example (Any 3 required)
Overall Performance	In general, the cohort's response to this question was very good, with many students providing relevant and correct explanations using appropriate examples from their surroundings or daily life. Candidates wrote that pushing a swing and if it will rotate about its pivot, applying a force to a spanner to rotate a nut, removing a bottle's cork by pushing down the bottle opener's lever, applying a force to a doorknob and the door swings open about its hinge and turning a steering wheel by applying a force on its rim. To improve the weaker responses, candidates should focus on selecting appropriate and accurate examples that align with the given context.

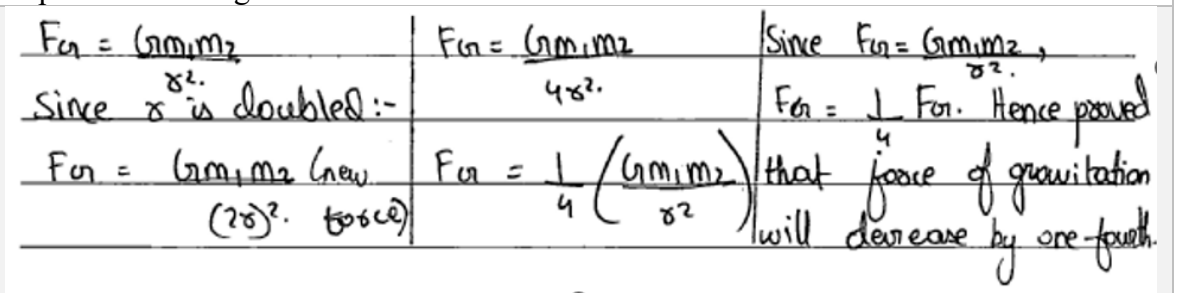
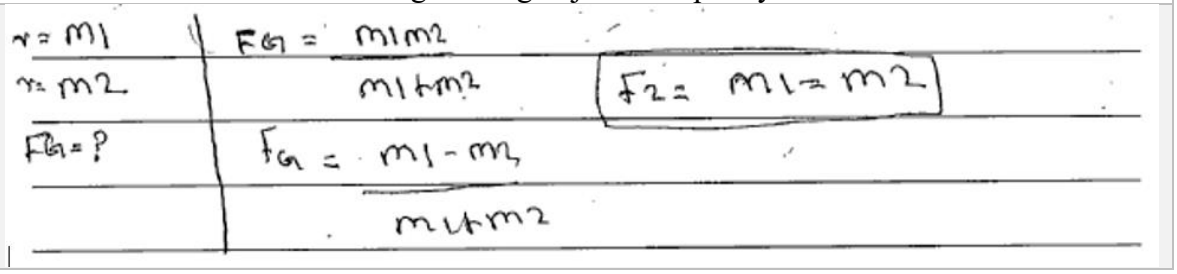
Description of Better Responses	In better responses, candidates demonstrated a strong understanding of the concept of turning effect by providing three distinct and correct examples from everyday life. They effectively showcased how turning effect, or torque, influences various situations in our daily experiences. These candidates excelled in relating theoretical principles to practical applications, earning full marks.
Image of Better Response	
Description of Weaker Responses	In weaker responses, candidates provided examples that lacked a clear link to the concept of turning effect. Some deviated from the question's demand and wrote about irrelevant topics such as clockwise and anticlockwise torque, equilibrium definitions, or types of equilibrium. To enhance their performance, candidates should focus on understanding the specific demands of the question and providing relevant examples directly related to the turning effect or torque.
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 https://akueb.knowledgeplatform.com/login

Any Additional Suggestion:

- There are many good topic related videos on the internet that can be shared with the students during classroom teaching, so that students could relate the examples with daily life.
- Encouraging them to stay on topic and align their responses with the question's requirements will lead to more accurate and meaningful answers. Offering clear guidance on addressing the question's scope will support their development in delivering appropriate and focused responses in future assessments.
- Teacher can provide different scenarios to the students where they can explore the use of turning effect. For example: see saw, handle of the door etc.

Question No. 3	
Question Text	Two identical balls of masses $\mathbf{m_1}$ and $\mathbf{m_2}$, whereas $\mathbf{m_1 = m_2}$, are separated by a distance of **r**. If the distance between the two balls is doubled, then derive an equation to prove that the gravitational force $\mathbf{F_G}$ between them will decrease one-fourth times of the initial force.
SLO No.	5.2.2
SLO Text	Solve problems using Newton's law of gravitation.
Max Marks	02
Cognitive Level	*U
Checking Hints	1 mark for EACH mathematical step used in the derivation (2 required)
Overall Performance	Overall, the question was challenging for the candidates and indicated that some candidates were confused between the key concepts of "doubled" and "halved". For example, they have taken distance as four times and then take the square root of the distance between two identical balls. However, better responses were also observed to demonstrate a good grasp of the subject and easily derived the correct equation for the force.
Description of Better Responses	In better responses, candidates effectively utilised the equation of gravitational force $F_1 = \frac{G m \times m}{r^2} = \frac{G m^2}{r^2}$ and carefully applied the given conditions demanded in the question. These responses also highlighted the candidates' proficiency in applying physics principles in problem-solving.
Image of Better Response	
Description of Weaker Responses	Candidates provided irrelevant or incorrect equations, and demonstrated difficulty with opening brackets and squaring, indicating a lack of knowledge in these areas. Some candidates also mixed up this topic with unrelated concepts such as the law of conservation of momentum or cases involving moving objects and pulleys.
Image of Weaker Response	

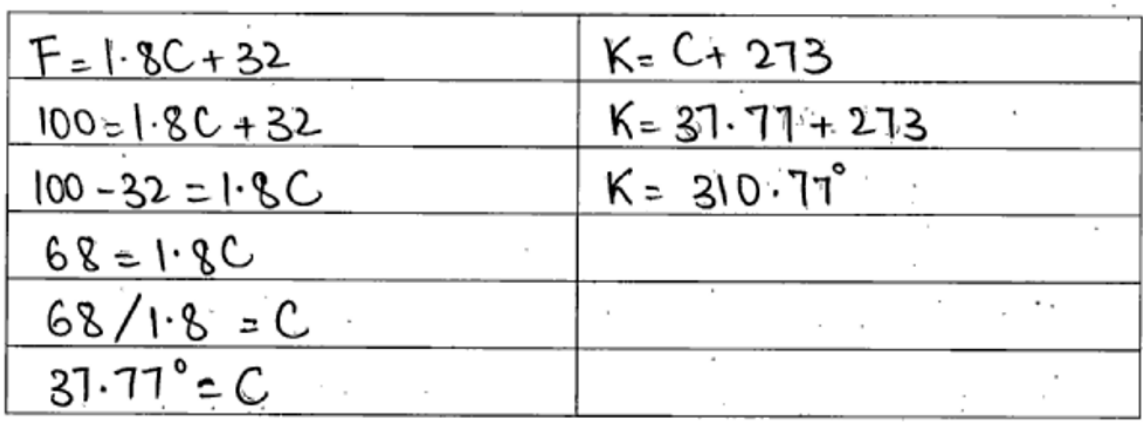
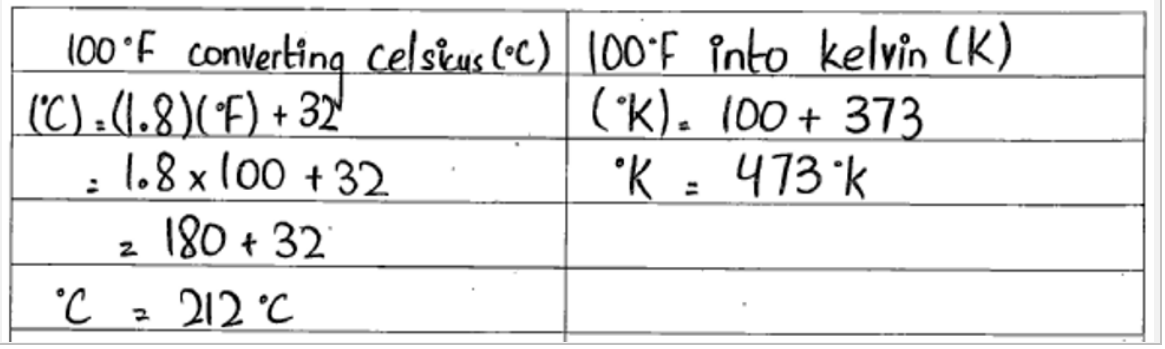
Suggestions for improvement (Highlighted part)

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 https://akueb.knowledgeplatform.com/login

Any Additional Suggestion:

- Provide additional practice questions to students that illustrate concepts like the one in the question, where terms with doubled and halved values are used. This will enhance their understanding and improve their performance.
- Teachers are recommended to encourage their students to focus on comprehending the specific meanings of key terms and their implications in physics. Encouraging further practice and providing clear explanations will help students better connect theoretical concepts with problem-solving skills, leading to more accurate and successful responses in similar scenarios. Positive reinforcement and recognition of their efforts will motivate them to excel in future assessments.

Question No. 4	
Question Text	Convert 100°F temperature into degree centigrade (°C) and Kelvin (K).
SLO No.	8.2.2
SLO Text	Convert temperature from one scale to another (Fahrenheit, Celsius and Kelvin scales).
Max Marks	03
Cognitive Level	*A
Checking Hints	1 mark for substituting the correct values in the formula of centigrade and Kelvin. 1 mark for writing the correct value of centigrade. 1 mark for writing the correct value of Kelvin.
Overall Performance	Candidates were observed to have a strong understanding of temperature conversion formulas. However, some candidates made errors in the centigrade formula, which was the first part of the question. Nevertheless, most candidates demonstrated proficiency in the second part of converting the temperature into Kelvin scale.
Description of Better Responses	In better responses, candidates accurately extracted the data from the question and applied the correct formulas for converting temperature to both centigrade and Kelvin scales. These candidates demonstrated a thorough understanding of the concepts and performed precise substitutions in the formulas, resulting in accurate calculations of the temperature values.

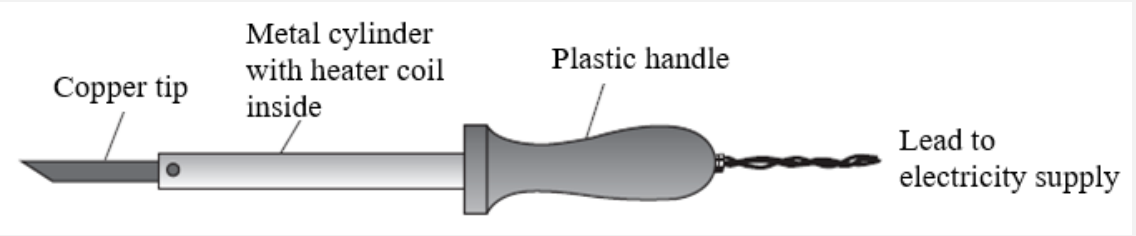
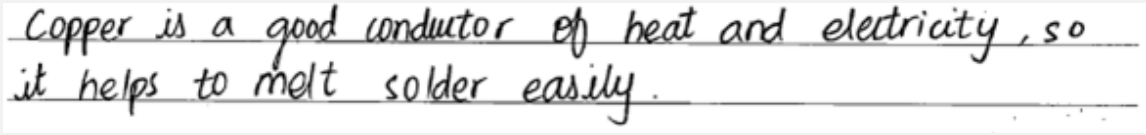
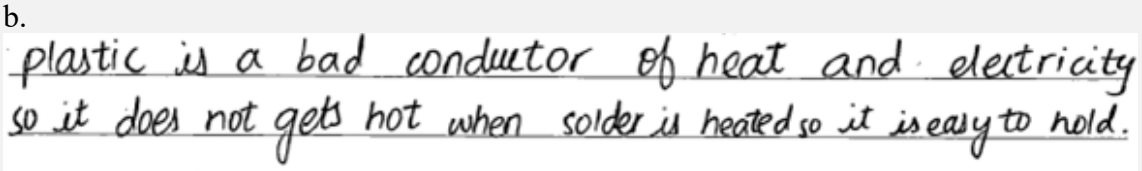
Image of Better Response	
Description of Weaker Responses	In weaker responses, candidates applied incorrect formulas for temperature conversions and made calculation errors. For instance, some added 373 instead of 273 to convert centigrade to Kelvin, while others wrongly divided by 2 for both conversions. These mistakes resulted in incorrect answers and impacted their scores adversely. To improve, candidates are encouraged to review and understand the correct conversion formulas, and practice solving similar problems to improve their conceptual understanding of the topic.
Image of Weaker Response	

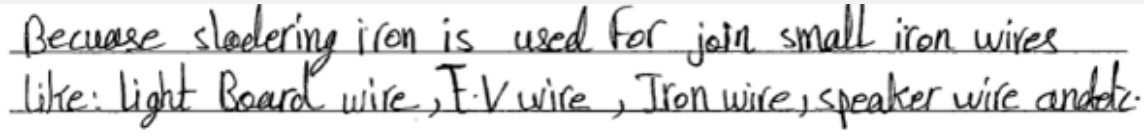
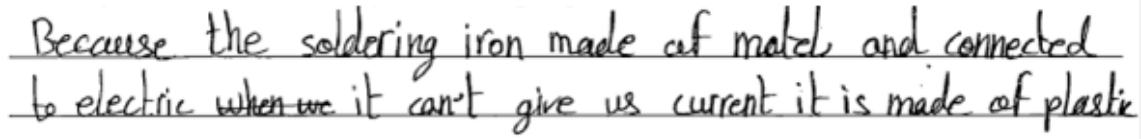
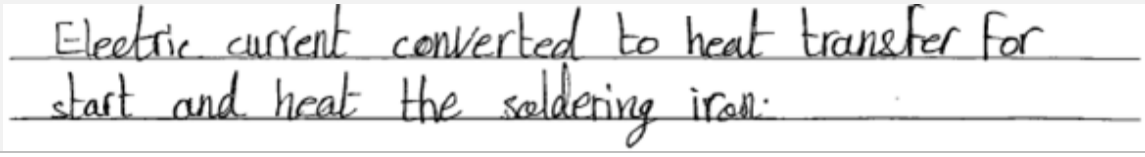
Suggestions for improvement (Highlighted part)

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	• Past paper questions • Discussion on E-Marking Notes • AKU-EB Digital Learning Solution powered by Knowledge Platform https://akueb.knowledgeplatform.com/login

Any Additional Suggestion:

- It is advisable that candidates recall some of the basic formulas in the basic and fundamental part in Physics, therefore, acquiring more knowledge on formula conversion is worthwhile.
- To encourage similar performance in the entire cohort, candidates should practice temperature conversion problems regularly and focus on understanding the underlying principles behind the formulas. Offering positive reinforcement for correct efforts will motivate them to excel in future assessments.
- Encouraging them to double-check their calculations will also help prevent some calculation errors.

Question No. 5	
Question Text	A soldering iron is shown in the given diagram that is used to melt solder, for joining wires in an electrical circuit.  a. Why is the tip of soldering iron made up of copper? b. Why is the handle of soldering iron made up of plastic? c. Name the process by which heat transfers from the copper tip to the solder.
SLO No.	9.1.2, 9.2.1, 9.4.1
SLO Text	Explain in terms of molecules and electrons how heat transfer occurs in solids. Explain that insulation reduces energy transfer by conduction. Describe radiation as the emission or transmission of energy.
Max Marks	03
Cognitive Level	*U
Checking Hints	1 mark for each part (3 required)
Overall Performance	The question was challenging for the candidates. However, there were responses in which candidates demonstrated strong understanding of heat transfer. Furthermore, few candidates made errors in identifying and reasoning in the question.
Description of Better Responses	In better responses, candidates demonstrated a clear understanding of the question by incorporating key words such as ‘good conductor of heat’, ‘insulator’, or ‘bad conductor of heat’, along with the concept of conduction. Their clear and organised responses showed that they really understood the idea being demanded in the question.
Image of Better Response	a.  Copper is a good conductor of heat and electricity, so it helps to melt solder easily. b.  plastic is a bad conductor of heat and electricity so it does not gets hot when solder is heated so it is easy to hold. c.  condution.

Description of Weaker Responses	In weaker responses, candidates used irrelevant terms like 'cut' or 'slip', indicating a limited understanding of conductors and insulators. Some candidates lacked knowledge of different heat transfer methods, leading to incorrect applications and scoring difficulties. To improve, candidates should strengthen their understanding of conductors, insulators, and heat transfer mechanisms.
Image of Weaker Response	a.  b.  c. 

Suggestions for improvement (Highlighted part)

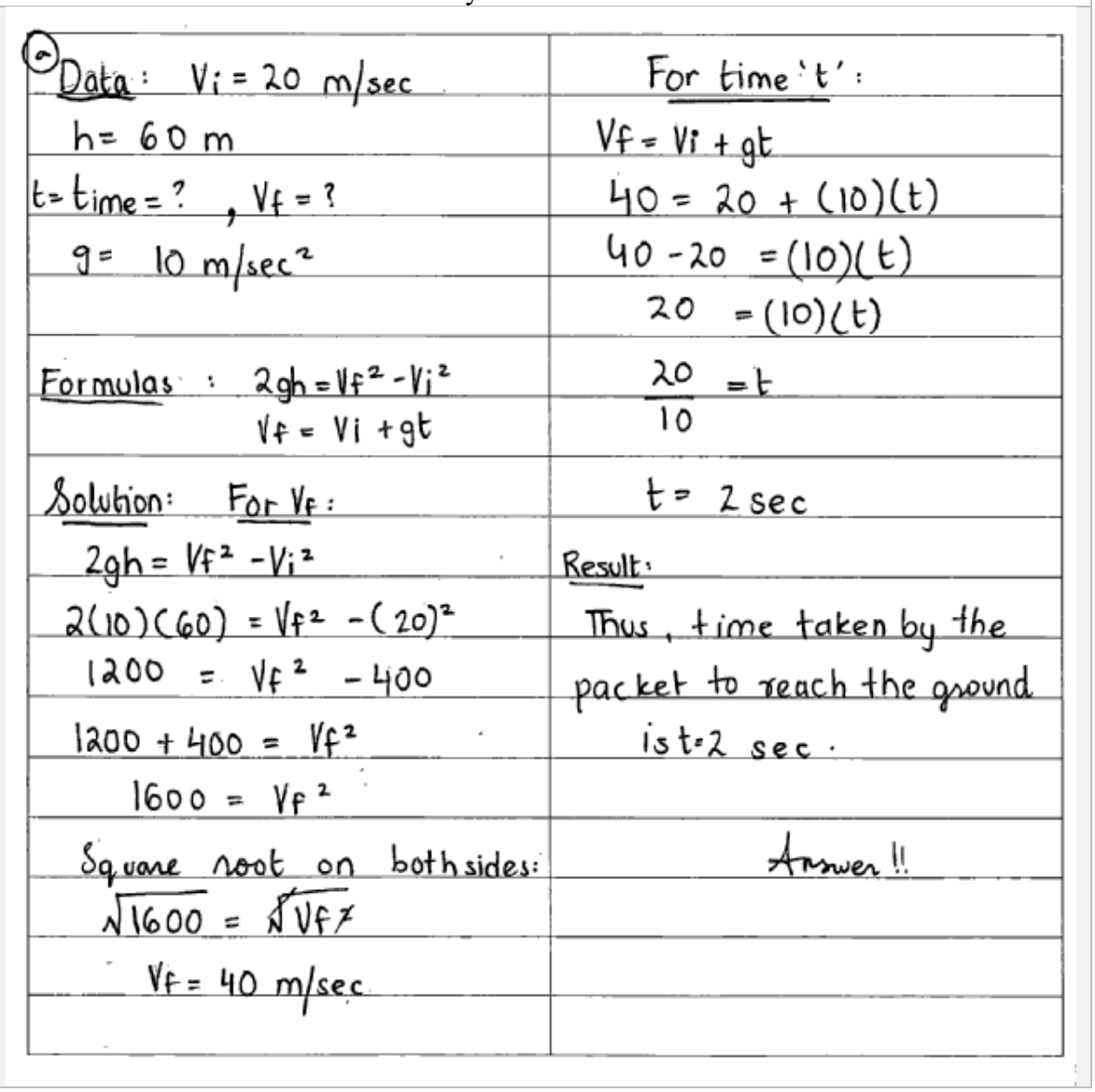
How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
• Understand the expectations of the command words • Look at the cognitive level • Identify the content that is required to answer that question (both in terms of understanding of concepts and any skills that may be required like analysing 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 https://akueb.knowledgeplatform.com/login

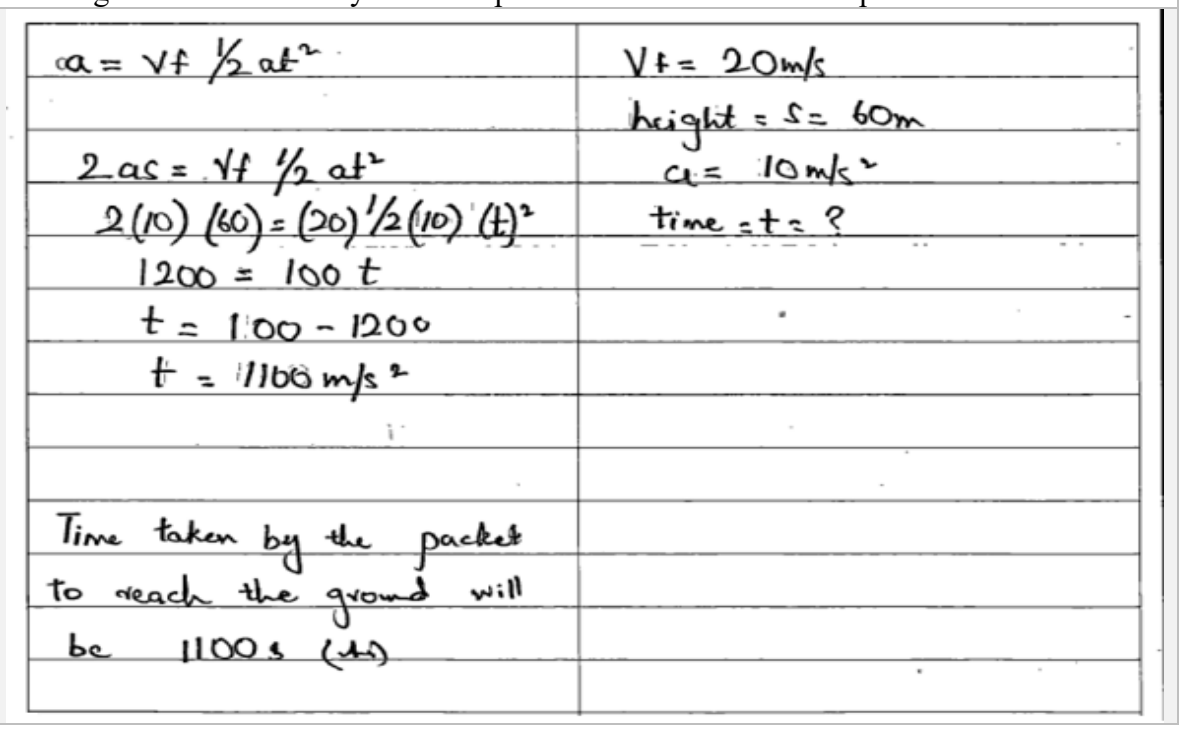
Any Additional Suggestion:

- It is suggested to provide these types of questions for additional practice and identify different activities about choosing conductors and insulators.
- Encouraging students to carefully read and identify important keywords in the questions will help them provide focused and relevant answers. Reinforcing the significance of precise language and its connection to the topic will enhance their performance in future assessments. Providing constructive feedback will further support their improvement in the subject matter.

Extended Response Questions (ERQs)

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

Question No. 6a	
Question Text	A rescue helicopter is ascending vertically with a velocity of 20 m/s from a base camp. At the height of 60 m above the Earth, a packet of relief goods is mistakenly dropped. Calculate the time taken by the packet to reach the ground. (**Note**: Take the value of acceleration due to gravity is 10 m/s^2.)
SLO No.	2.9.2
SLO Text	Solve word problems related to uniformly accelerated motion using appropriate equations.
Max Marks	1 mark for writing the correct data. 1 mark for each mathematical step used in the word problem (5 required)
Cognitive Level	06
Checking Hints	*A
Overall Performance	Majority of the candidates attempted this part of the question and showcased a strong grasp of equations of motion. However, some candidates faced challenges when differentiating between initial and final velocities.
Description of Better Responses	Candidates displayed a satisfactory understanding of the concept, with better responses accurately determining the value of time using the appropriate equations of motion ($2gS = V_f^2 - V_i^2$ and $V_f = V_i + at$). Some candidates utilised factorisation or the quadratic formula to calculate the time effectively.
Image of Better Response	

Description of Weaker Responses	Weaker responses were observed to face challenge in choosing the correct equation and made errors in data extraction, used incorrect equation of motion that were led to incorrect answers. To improve, candidates should practice more problems involving equations of motion and focus on understanding the given data to enhance their problem-solving skills. Seeking clarification on any misconceptions will also aid in better performance.
Image of Weaker Response	

Suggestions for improvement (Highlighted part)

How to Approach SLO	Pedagogy Used for that SLO	Assessment Strategies
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Any Additional Suggestion:

- Engaging in extensive practice with various types of word problems involving diverse situations and cases related to kinematic equations will significantly contribute to achieving higher scores.
- To improve, candidates should practice more questions and reinforce their understanding of relevant formulas. Providing constructive feedback and additional practice opportunities will contribute to better performance in subsequent assessments. Encouragement and support will help candidates enhance their skills and excel in similar topics.

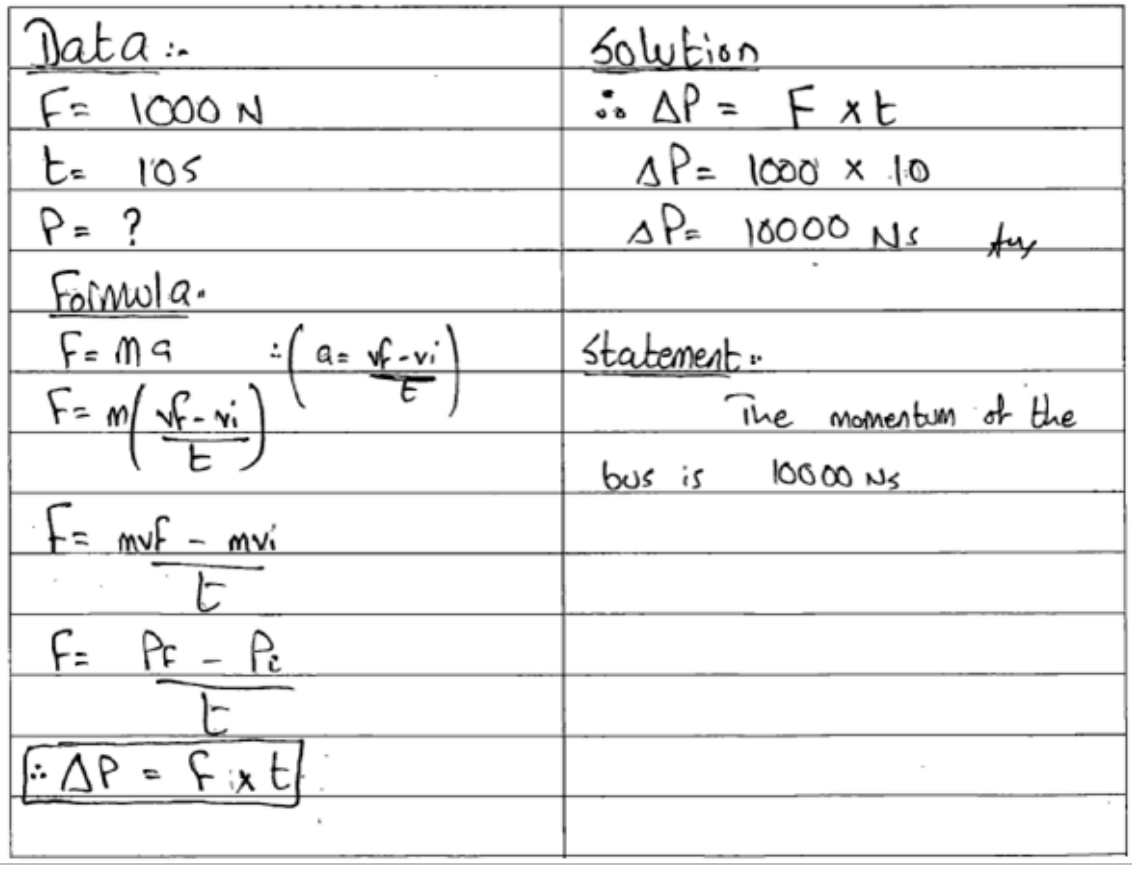
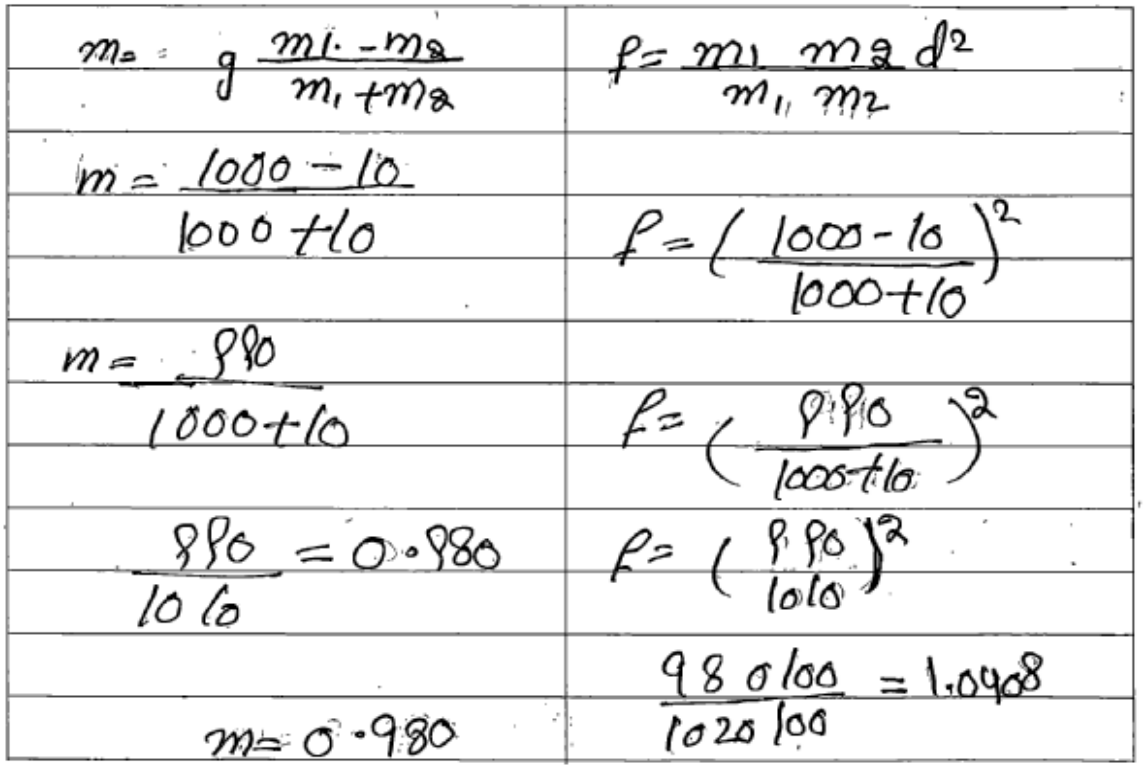
Question No. 6b	
Question Text	A net force of 1000 N is applied to a passenger bus for 10 s that causes the bus to move on a straight road. Calculate the momentum of the bus.
SLO No.	3.2.3
SLO Text	Solve word problems related to force and momentum.
Max Marks	06
Cognitive Level	*A
Checking Hints	1 mark for each mathematical step used in the word problem (5 required). 1 mark for writing the correct SI unit of momentum.
Overall Performance	Most candidates demonstrated a good understanding of momentum calculations. Many of them successfully applied the correct formula $\mathbf{P = F.v \div \frac{v}{t}}$ (OR) $\mathbf{F\ \Delta t = \Delta P}$ to determine momentum accurately. Some top-performing candidates not only used the formula but also derived it from relevant principles, showcasing a deeper grasp of the concept. These candidates effectively extracted data from the question and performed precise calculations, leading to accurate answers with proper SI units.
Description of Better Responses	Most candidates successfully applied the correct formula to calculate the momentum of the bus. They accurately extracted the relevant data from the question and arrived at the correct value of momentum, which was 10,000 N·s, presented with the appropriate unit. These responses demonstrated a good understanding of momentum calculation and effective application of mathematical principles.
Image of Better Response	
Description of Weaker Responses	Weaker responses demonstrated challenges in applying the appropriate formula to calculate momentum. Some candidates deviated from the given word problem and attempted to calculate weight or discussed unrelated concepts like equilibrium. This indicates a need for a better understanding of the specific question's requirements and a potential misconception regarding the concept of momentum. Candidates are encouraged to practice numerical problems to enhance their comprehension and accuracy in solving numerical based questions.

Image of Weaker Response	

Suggestions for improvement (Highlighted part)

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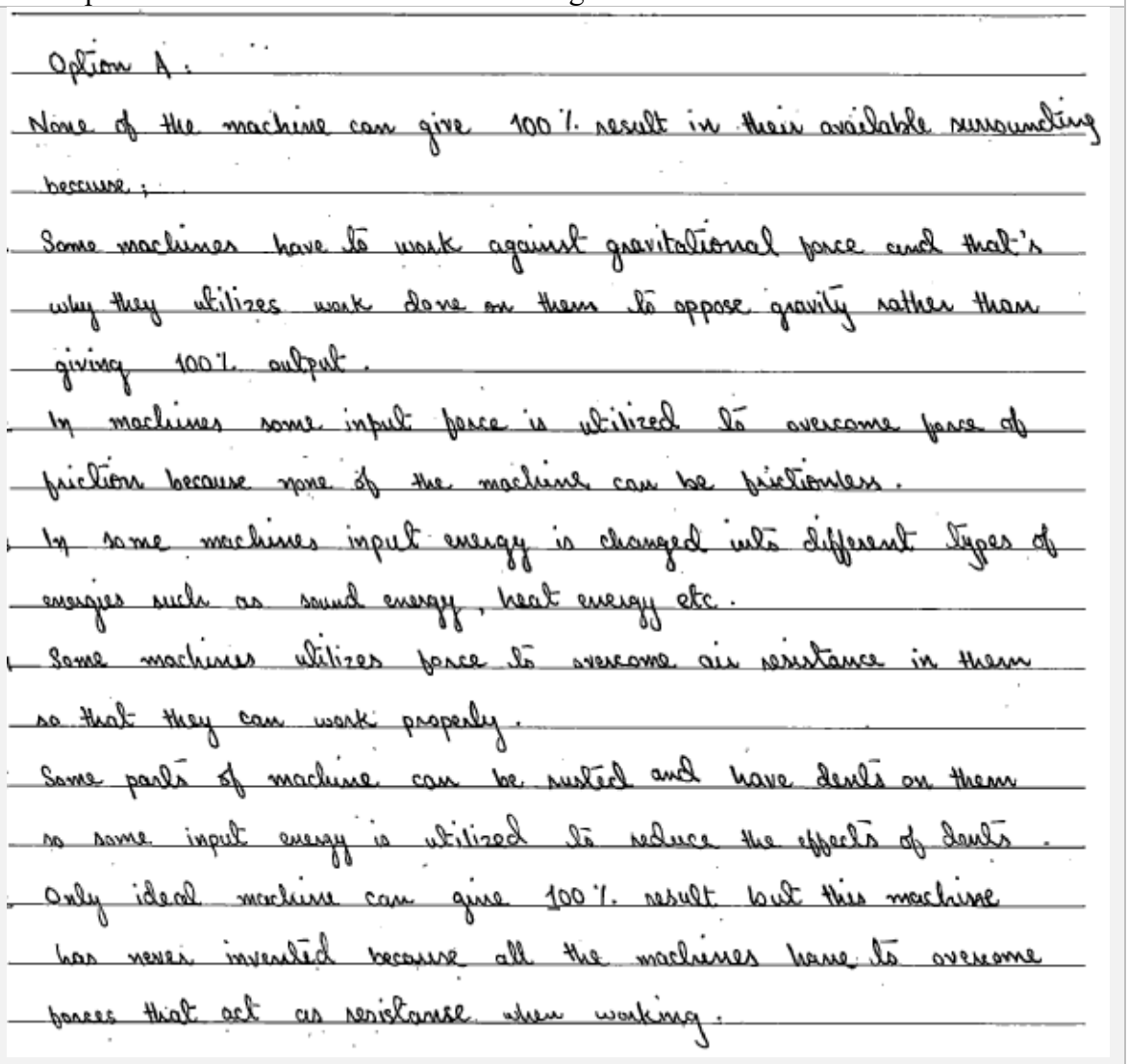
Any Additional Suggestion:
Nil

Question No. 7a	
Question Text	Explain in any SIX points, why machines cannot give 100% efficiency in their available surrounding.
SLO No.	6.5.3
SLO Text	Explain why a system cannot have an efficiency of 100%.
Max Marks	06
Cognitive Level	*U
Checking Hints	1 mark for each point (6 required)
Overall Performance	Majority of the candidates attempted part (b) of this question. In this part of the question, they demonstrated a strong understanding of the concept of efficiency of a machine by providing explanation with everyday life.
Description of Better Responses	In better responses, some of the candidates explained the concept with their understanding of this topic by writing that no machine is free from the effects of gravity, and even with wonderful lubrication, friction always exists. This friction leads to the loss of energy in the form of heat, into the surroundings. They mentioned that the energy a machine produces are always less than the energy put into it (energy input). They are also mentioned that most machines transfer energy from one place or another, or transform one form of energy (e.g., chemical) into another (e.g., mechanical) and the total energy supplied to a system cannot be converted into external work completely and some part of the energy supplied is used to change the internal energy of the system. Some part is also released into the surroundings.
Image of Better Response	

Option A:

None of the machine can give 100% result in their available surrounding because;

Some machines have to work against gravitational force and that's why they utilizes work done on them to oppose gravity rather than giving 100% output.

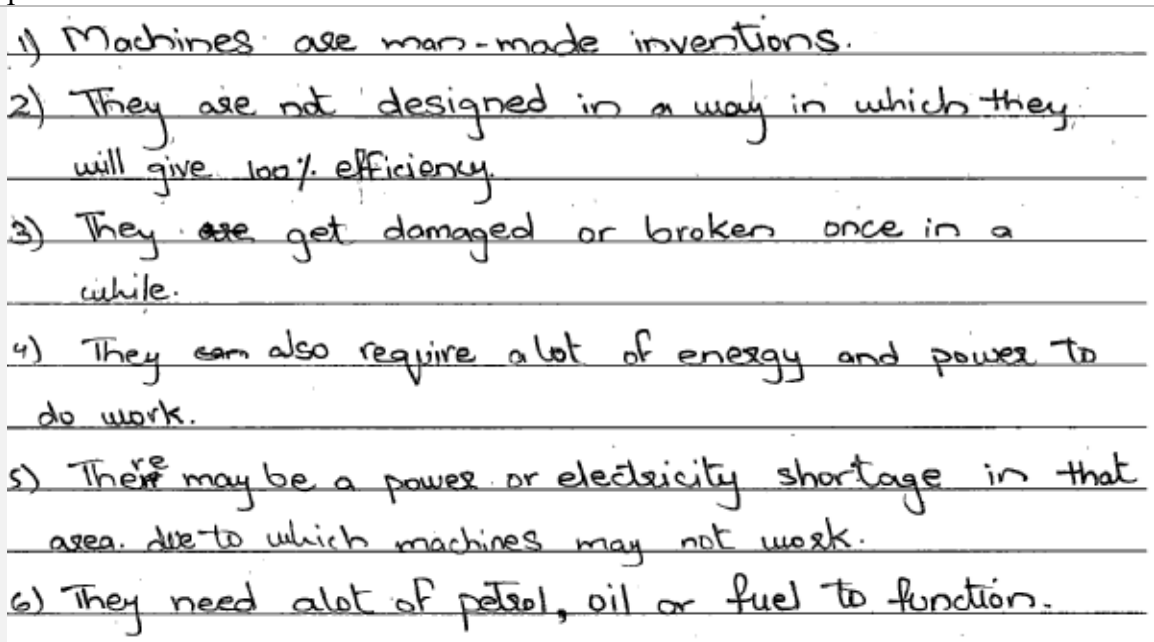
In machines some input force is utilized to overcome force of friction because none of the machine can be frictionless.

In some machines input energy is changed into different types of energies such as sound energy, heat energy etc.

Some machines utilizes force to overcome air resistance in them so that they can work properly.

Some parts of machine can be rusted and have dents on them so some input energy is utilized to reduce the effects of dents.

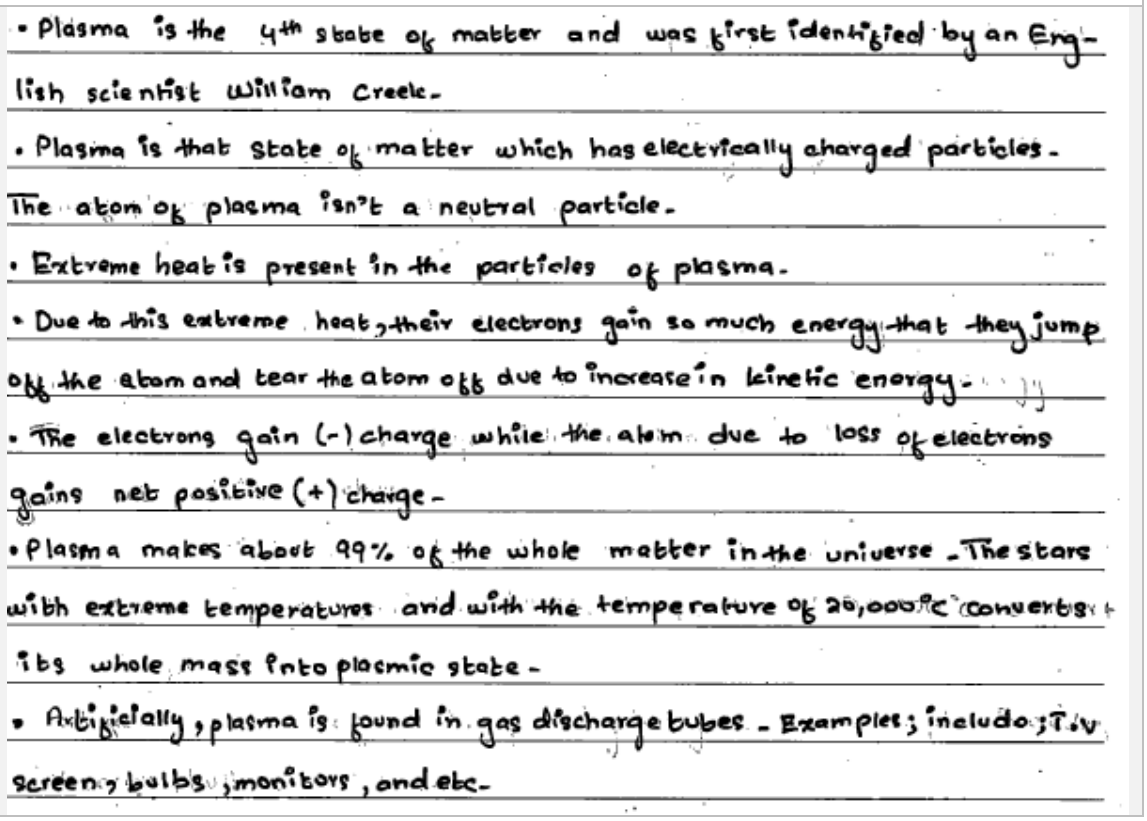
Only ideal machine can give 100% result but this machine has never invented because all the machines have to overcome forces that act as resistance when working.

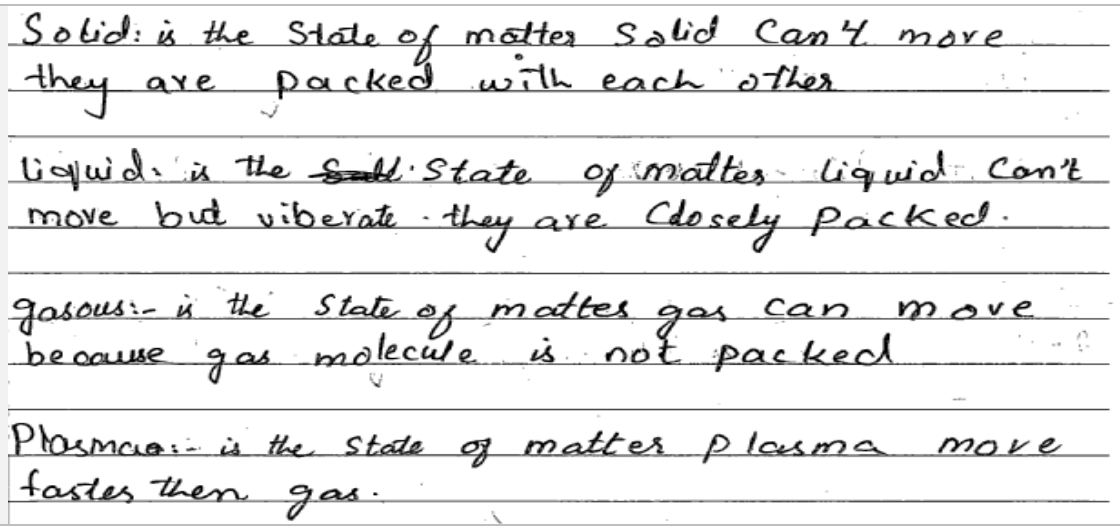
Description of Weaker Responses	Weaker responses displayed inaccuracies and irrelevancies, like they mentioned inventions, uses, advantages and disadvantages of machines, resulting in an inability to demonstrate a thorough understanding of the topic. Candidates might have misunderstood the question or lacked a solid grasp of the underlying concepts. To improve, they should focus on understanding the key concepts, carefully read the questions, and practice similar problems. Strengthening their knowledge and problem-solving skills will help them provide relevant and accurate responses in future assessments, leading to better overall performance.
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 https://akueb.knowledgeplatform.com/login

Any Additional Suggestion:
Nil

Question No. 7b	
Question Text	Describe the fourth state of matter 'plasma' in any SIX points.
SLO No.	7.1.2
SLO Text	Describe plasma as the fourth state of matter.
Max Marks	06
Cognitive Level	*A
Checking Hints	1 mark for each point (Any 6 required)
Overall Performance	The overall response to this question exhibited very good, though not quite great performance within the cohort. It was observed that the question posed a certain level of difficulty for many candidates, resulting in some inaccuracies in their attempts. To improve, students are encouraged to strengthen their understanding of the relevant concepts and practice similar problems regularly.
Description of Better Responses	Some candidates provided correct and relevant points, earning full marks. Like Plasma is defined as a state of matter mainly comprised of ions and electrons. The wrote that presence of charged ions means that a plasma is highly electrically conductive and responds strongly to magnetic and electric fields. They mentioned that its behaviour is most comparable to that of a gas, as the plasma has no defined volume but instead assumes the volume of the container it is in. Despite all of the constituent particles being charged, typically the plasma itself has no excess charge. However, they also mentioned that some plasma can be created with an overall charge (either positive or negative) and are composed of pure electron, ion, positron, or antiproton plasmas. Plasmas commonly form by heating a gas to the intense temperature. When heated, the atoms in the gas either gain or lose electrons and the end result is charged particle plasma and plasma can also be created by breaking any molecular bonds with a magnetic field via a device such as a laser.
Image of Better Response	

Description of Weaker Responses	Some candidates provided relevant responses about the specific state of matter mentioned, others misunderstood the question and discussed all four states (Solid, liquid, gas, and plasma). They treated both the state (liquid and plasma) of matter as one. Encouraging critical thinking and attention to detail will help students demonstrate better comprehension and precision in their responses. However, a few candidates lost marks by reiterating information already mentioned in the question. To improve, students should thoroughly understand the question, avoid redundancies, and focus on adding unique insights or examples.
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 https://akueb.knowledgeplatform.com/login

Any Additional Suggestion:
Subject teachers may explain the different types of matter with some examples. For instance, they can talk about solids, like a desk, which has a fixed shape and volume. Then, there are liquids, like water, which take the shape of their container but have a fixed volume. Finally, there are gases, like the air we breathe, which can change both their shape and volume. These examples help students understand the concept better.

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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