



Examination Answer Books

12 Pages

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either read your legible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	2414414
2	Title of Examination Paper	Trans
3	Module Code	ACDA 5006
4	Date and Time of Examination	07/01/24 15:00
5	Examination Venue	I9 103
6	Seat Number	037
7	Number of Answer Books handed in	

List the numbers of the questions you have attempted	Office Use
1	5
2a	2
2b	1
3a	4
4a	4
4b	4
5	5
6	5
3b	0
Total	30

$$\frac{30}{50} \times 100 = 60\%$$

a devices

1) Calibration is when ~~some things~~ measurements are compared to the known answer. Changes can be made to the device to allow and ensure that future readings are accurate. The purpose of calibration is to ensure that equipment used on site is accurate. Otherwise this could lead to many problems such as damage to plant equipment / plant failure or could cause harm to people if the known value isn't being displayed.

5

2a) The purpose of the circuit is to provide over voltage protection.

2

3a) Please see graph paper

4

6) Accuracy is how close the instruments measurement is to the true value and precision is the instruments degree of freedom from random errors.

5

5) Random errors are errors that are out of your control. So the error has occurred and you can't prevent it. However, systematic errors have occurred due to a fault in the process that could have been prevented.

A typical source of a systematic error could be human intervention where you could have gone to set up a measurement gauge and didn't use the correct settings. A typical source of random errors could be environmental where the weather is affecting the results leading to a random error.

5

2B) The operation of over voltage protection is to protect the circuit from a sudden rush of a large amount of voltage from entering the circuit. If this large amount of voltage was to pass through then it will essentially fry components in the circuit and stop them from working.

3B)
$$\frac{12.41}{50} \times 100$$

$$= 0.2482 \times 100$$

$$= 24.82 \%$$

4a) 4b)	~~Time~~	Water chlorination Plant	Domestic gas Smart meter
	Accuracy	must be extremely accurate	highly accurate
	Cost	Expensive	medium - not cheap but not expensive
	Temperature ranges	10°C - 60°C	0°C - 200°C
	Chemical resistant	Yes - withstand Chlorine	NO
	Water resistant	Yes	NO
	redundancy	Yes - will have multiple back up sensors	No - Can be Fixed or new one installed as it isn't essential

8.

Transducer Characteristics

