TOTAL MARK:	/ 60

Electronics task form

AS Electronics

Component 2 - Systems design and realisation tasks

Centre Number:	**Centre Name:**
Candidate number:	**Candidate name:**

Task 1 Focus	Mark: / 20	Teacher's signature:
		Date:
Task 2 Focus	Mark: / 20	Teacher's signature:
		Date:
Task 3 Focus	Mark: / 20	Teacher's signature:
		Date:

Notice to candidate
The work you submit for assessment must be your own.
If you copy from someone else, allow another candidate to copy from you, or if you cheat in any other way, you may be disqualified from at least the subject concerned.

Candidate declaration
I have read and understood the Notice to candidate (above). I have produced the attached work without assistance other than that which is acceptable within the specification. I have clearly referenced any sources and any AI tools used in the work. I understand that false declaration is a form of malpractice.

Candidate's signature:	Date:

Teacher declaration
I confirm that:

- Any assistance that goes beyond general guidance has been recorded and taken into account when marking the work.
- Otherwise apart from general guidance given within the parameters set out in the specification, the work was solely that of the candidate.
- The work was conducted under the conditions laid out by the specification.
- The candidate has clearly referenced any sources and any AI tools used in the work. I understand that false declaration is a form of malpractice.
- Signed candidate declarations for the entire cohort will be kept on file.

Teacher's signature:	Date:

Details of additional assistance given
Record here details of any assistance given which goes beyond general guidance and taken into account when the work is marked (continue on separate sheet if necessary). You must indicate where you have taken into account the additional assistance provided via annotations.

Task 1: Digital system

1. System planning		Annotation code	Criteria awarded √ P X
3 marks	**The candidate has provided**: a3 a clear analysis of a problem leading to a design specification in both qualitative and quantitative terms (typically at least 3 of each), and including 3 or more detailed realistic electronic parameters	Pa3	
2 marks	**The candidate has provided**: a2 some analysis of a problem with a design specification in both qualitative and quantitative terms (typically at least 2 of each), and including 1 or more realistic electronic parameters	Pa2	
1 mark	**The candidate has provided:** a1 a limited analysis of a problem and a partial design specification in either qualitative or quantitative terms (typically at least 4 in total)	Pa1	
0 marks	Response not creditworthy or not attempted.	P0	
		Mark awarded:	/ 3

2. System Development		Annotation code	Criteria awarded √ P X
6 - 8 marks	**The candidate has:** a3 provided a clearly labelled block diagram for the system and developed the system as a series of sub-systems and made predictions regarding its behaviour b3 produced an accurate good quality fully labelled circuit diagram for the system c3 planned and produced a very well organised physical circuit layout with all wires arranged vertically / horizontally, and showed good awareness of risk assessment d3 arranged wires with no unnecessary crossing of components which were mounted to a high standard and showed good awareness of safe working procedures	Da3 Db3 Dc3 Dd3	
3 - 5 marks	**The candidate has:** a2 provided a labelled block diagram for the system and made some attempt to develop the system as a series of sub-systems b2 produced an accurate well labelled circuit diagram for the system c2 planned and produced a generally well organised physical circuit layout with most wires arranged vertically / horizontally and showed some awareness of risk assessment d2 arranged most wires without unnecessary crossing of components which were mounted to a good standard and showed awareness of safe working procedures	Da2 Db2 Dc2 Dd2	
1 - 2 marks	**The candidate has:** a1 made a superficial attempt to develop the system as a series of sub- systems b1 produced a circuit diagram for the system which was partially labelled or lacked clarity c1 produced a physical circuit layout with minimal evidence of organisation / planning and showed some superficial awareness of risk assessment/ safe working procedures	Da1 Db1 Dc1	
0 marks	Response not creditworthy or not attempted.	D0	
		Mark awarded:	/ 8

3. System Realisation		Annotation Code	Criteria awarded √ P X
5 - 6 marks	**The candidate has:** a3 performed functional tests on all the sub-systems and recorded all relevant results b3 tested the complete physical system prototype and provided a detailed analysis of the results using standard scientific convention which included most of the relevant electrical measurements c3 produced an electronic system that worked consistently and reliably and included a comprehensive user guide	Ra3 Rb3 Rc3	
3 - 4 marks	**The candidate has:** a2 performed functional tests on most of the sub-systems and recorded most relevant results b2 tested the complete physical system prototype and provided some analysis of the results using standard scientific convention which included some of the relevant electrical measurements c2 produced an electronic system that worked most of the time and included a user guide	Ra2 Rb2 Rc2	
1 - 2 marks	**The candidate has:** a1 performed functional tests on 1 or more different sub-systems and made some attempt at recording the results b1 tested the complete physical system prototype and provided a limited analysis of the results c1 produced an electronic system in which at least 2 sub-systems worked most of the time	Ra1 Rb1 Rc1	
0 marks	Response not creditworthy or not attempted.	R0	
		Mark awarded:	/ 6

4. Evaluation		Annotation Code	Criteria awarded √ P X
3 marks	**The candidate has:** a3 undertaken a critical and objective evaluation of the performance of the complete system which was valid, made comprehensive comparisons with the design specification and made at least 2 thorough suggestions for improvement with explanations of how they improve the system	Ea3	
2 marks	**The candidate has:** a2 undertaken an objective evaluation of the performance of the complete system which was valid, made some comparisons with the design specification and made at least 2 some suggestions for improvement	Ea2	
1 mark	**The candidate has:** a1 undertaken a simple evaluation of the performance of the complete system which was valid in few respects, made minimal comparison with the design specification and made at least 1 superficial suggestions for improvement	Ea1	
0 marks	Response not creditworthy or not attempted.	E0	
		Mark awarded:	/ 3

√ achieved **P** partly achieved **X** not achieved

Task 1 – Total mark:	
	20

Task 2: Analogue system

1. System planning		Annotation code	Criteria awarded √ P X
3 marks	**The candidate has provided**: a3 a clear analysis of a problem leading to a design specification in both qualitative and quantitative terms (typically at least 3 of each), and including 3 or more detailed realistic electronic parameters	Pa3	
2 marks	**The candidate has provided**: a2 some analysis of a problem with a design specification in both qualitative and quantitative terms (typically at least 2 of each), and including 1 or more realistic electronic parameters	Pa2	
1 mark	**The candidate has provided:** a1 a limited analysis of a problem and a partial design specification in either qualitative or quantitative terms (typically at least 4 in total)	Pa1	
0 marks	Response not creditworthy or not attempted.	P0	
		Mark awarded:	/ 3

2. System Development		Annotation code	Criteria awarded √ P X
4 marks	**The candidate has:** a3 produced an accurate good quality circuit diagram for the system which was clearly labelled b3 planned and produced a very well organised physical circuit layout with all wires arranged vertically/horizontally, and showed good awareness of risk assessment	Da3 Db3	
2 - 3 marks	**The candidate has:** a2 produced an accurate well labelled circuit diagram for the system b2 planned and produced a generally well organised physical circuit layout with most wires arranged vertically/horizontally and showed some awareness of risk assessment	Da2 Db2	
1 mark	**The candidate has:** a1 produced a circuit diagram for the system that was partially labelled or lacked clarity b1 produced a physical circuit layout with minimal evidence of organisation/planning and showed some superficial awareness of risk assessment/ safe working procedures	Da1 Db1	
0 marks	Response not creditworthy or not attempted.	D0	
		Mark awarded:	/ 4

3. System Realisation		Annotation Code	Criteria awarded √ P X
8 - 10 marks	**The candidate has:** a3 provided comprehensive evidence of planning test procedures and has clearly identified all the appropriate test equipment and made predictions regarding test ranges required b3 tested the complete physical system prototype with all the relevant numerical measurements of the system parameters being made making, appropriate use of standard scientific convention c3 provided a detailed justification for the accuracy of most of the measurements made and clearly recorded the results in table form and graphically d3 provided a detailed analysis of the results	Ra3 Rb3 Rc3 Rd3	
4 - 7 marks	**The candidate has:** a2 provided evidence of planning test procedures and has identified all the appropriate test equipment b2 tested the complete physical system prototype with most of the relevant numerical measurements of the system parameters being made, making some appropriate use of standard scientific convention c2 provided some justification for the accuracy of most of the measurements made and recorded the results in table form and graphically d2 provided good analysis of the results	Ra2 Rb2 Rc2 Rd2	
1 - 3 marks	**The candidate has:** a1 provided minimal evidence of planning test procedures and has identified some appropriate test equipment b1 partially tested the complete physical system prototype and made basic numerical measurements c1 recorded results in table form or graphically d1 provided some analysis of the results	Ra1 Rb1 Rc1 Rd1	
0 marks	Response not creditworthy or not attempted.	R0	
		Mark awarded:	/ 10

4. Evaluation		Annotation Code	Criteria awarded √ P X
3 marks	**The candidate has:** a3 undertaken a critical and objective evaluation of the performance of the complete system which was valid, made comprehensive comparisons with the design specification and made at least 2 suggested improvements in procedures for data collection	Ea3	
2 marks	**The candidate has:** a2 undertaken an objective evaluation of the performance of the complete system which was valid and made at least 2 comparisons with the design specification	Ea2	
1 mark	**The candidate has:** a3 undertaken a simple evaluation of the performance of the complete system which was valid in few respects, made minimal comparison with the design specification and made at least 1 superficial suggestion for improvement	Ea1	
0 marks	Response not creditworthy or not attempted.	E0	
		Mark awarded:	/ 3

√ achieved **P** partly achieved **X** not achieved

Task 2 – Total mark:	
	20

Task 3: Microcontroller system (Flowchart program)

1. System planning		Annotation code	Criteria awarded √ P X
2 marks	**The candidate has provided**: a2 a clear and concise analysis of a problem and a design specification in both qualitative and quantitative terms (typically at least 3 of each), and including two or more detailed realistic measurable parameters	Pa2	
1 mark	**The candidate has provided:** a1 an analysis of a problem and a partial design specification in either qualitative or quantitative terms (typically at least 4 in total)	Pa1	
0 marks	Response not credit worthy or not attempted	P0	
		Mark awarded:	/ 2

2. System Development		Annotation code	Criteria awarded √ P X
6 - 8 marks	**The candidate has:** a3 produced a comprehensive flowchart solution to the problem and make predictions regarding its behaviour b3 devised a program that reacted to and used information from inputs to control outputs and utilised 4 or more port bits c3 used 8 or more different commands in the program including two types of decision command d3 produced simulation tests and given a full account of the tests on the proposed flowchart program	Da3 Db3 Dc3 Dd3	
3 - 5 marks	**The candidate has:** a2 produced a good flowchart solution to the problem b2 devised a program that reacted to and used information from inputs to control outputs and utilised 3 or more port bits c2 used 6 or more different commands in the program including one or more types of decision command d2 produced simulation tests and given a reasonable account of the tests on the proposed flowchart program with minor omissions in the results	Da2 Db2 Dc2 Dd2	
1 - 2 marks	**The candidate has:** a1 produced a basic flowchart solution to the problem b1 devised a program that utilised 2 or more port bits c1 used 4 or more different commands in the program d1 produced simulation tests and given a superficial account of the tests on the proposed flowchart program, with some omissions in the results	Da1 Db1 Dc1 Dd1	
0 marks	Response not creditworthy or not attempted	D0	
		Mark awarded:	/ 8

3. System Realisation		Annotation code	Criteria awarded √ P X
6 - 8 marks	**The candidate has:** a3 produced an accurate circuit diagram and physical circuit layout which were very well organised and provide a component list b3 made most wire connections and mounted most components to a high standard and showed good awareness of risk assessment /safe working procedures c3 downloaded the program to the microcontroller circuit and comprehensively tested the complete physical system prototype d3 provided a detailed analysis of the results for a system that worked consistently and reliably	Ra3 Rb3 Rc3 Rd3	
3 - 5 marks	**The candidate has:** a2 produced an accurate circuit diagram and physical circuit layout which were organised b2 made most wire connections and mounted most components to a good standard and showed some awareness of risk assessment/safe working procedures c2 downloaded the program to the microcontroller circuit and tested the majority of the complete physical system prototype d2 provided some relevant analysis of the results with some detail for a system that mainly worked	Ra2 Rb2 Rc2 Rd2	
1 - 2 marks	**The candidate has:** a1 produced a circuit diagram and physical circuit layout which tended not to be very well organised b1 downloaded the program to the microcontroller circuit and partially tested the complete physical system prototype c1 provided some superficial analysis of the results for a system that worked at some time	Ra1 Rb1 Rc1	
0 marks	Response not creditworthy or not attempted	R0	
		Mark awarded:	/ 8

4. Evaluation		Annotation code	Criteria awarded √ P X
2 marks	**The candidate has:** a2 undertaken an objective evaluation of the performance of the complete system which was valid, made comprehensive comparisons with the design specification and made at least 2 suggestions for improvement with explanations of how they improve the system	Ea2	
1 mark	**The candidate has:** a1 undertaken a simple evaluation of the performance of the complete system which was valid in few respects, made minimal comparisons with the design specification and made at least 1 superficial suggestion for improvement	Ea1	
0 marks	Response not creditworthy or not attempted	E0	
		Mark awarded:	/ 2

√ achieved **P** partly achieved **X** not achieved

Task 3 – Total mark:	
	20