Level 3 Microprocessors and Micro-controllers (7267-527)

e-Quals
Assignment guide for Candidates
Assignment A

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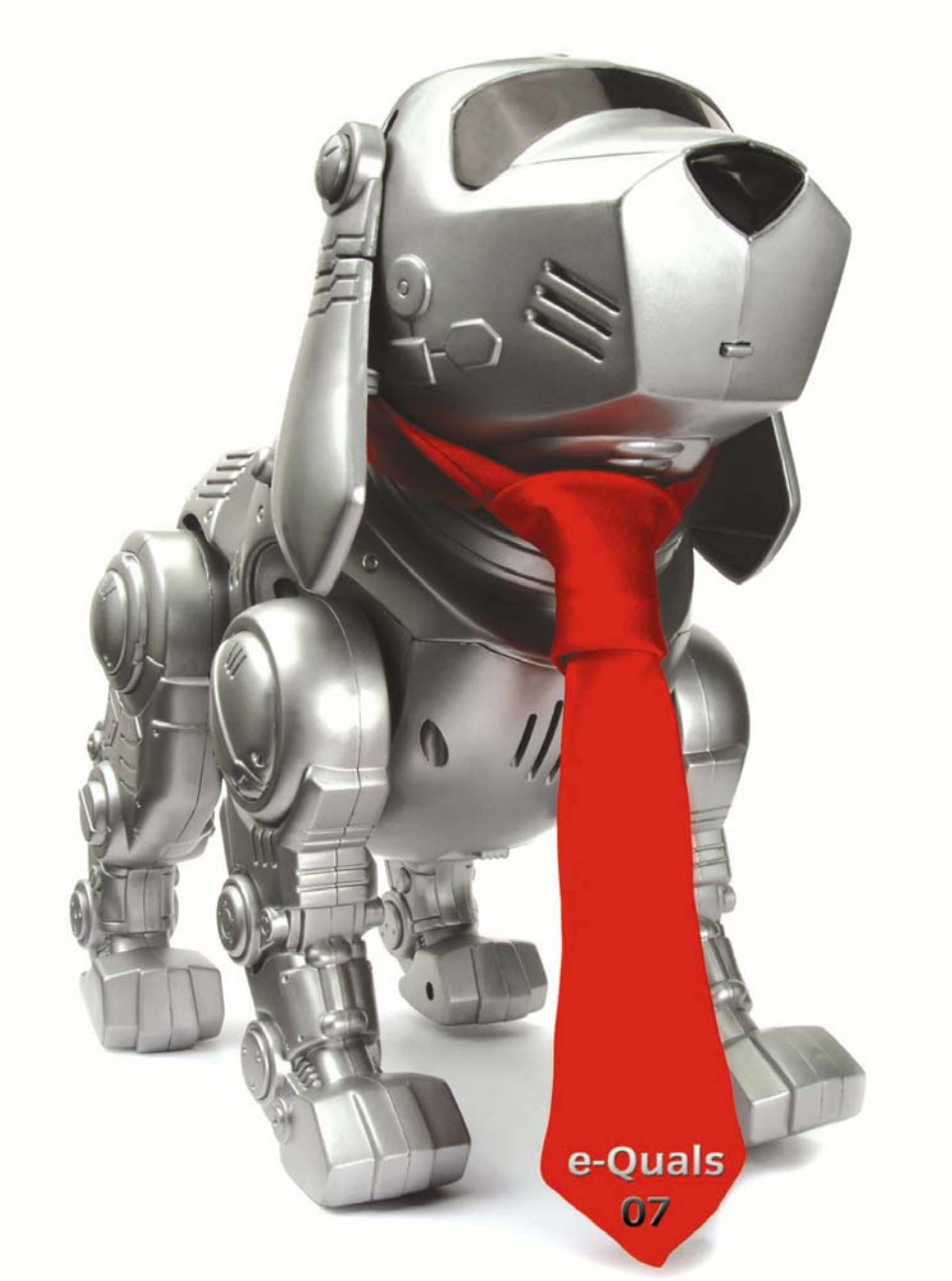

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City & Guilds
1 Giltspur Street
London EC1A 9DD
T +44 (0)20 7294 2800
F +44 (0)20 7294 2400
www.cityandguilds.com
learnersupport@cityandguilds.com

Contents

Level 3 Microprocessors and Micro-controllers (7267-527)

Introduction – Information for Candidates	2
Candidate instructions	3

Level 3 Microprocessors and Micro-controllers (7267-527) Assignment A

Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 3 Microprocessors and Micro-controllers (7267-527).

Health and safety

You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will **not** be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

Time allowance

The recommended time allowance for this assignment is **3 hours**.

Level 3 Microprocessors and Micro-controllers (7267-527)

Candidate instructions

Time allowance: 3 hours

Assignment set up:

This assignment is made up of **three** tasks

- Task A – Microprocessor or micro-controller – fault-finding.
- Task B – Microprocessor or micro-controller – programming.
- Task C – Short answer questions

Task A – Microprocessor or micro-controller – fault-finding

You will be provided with each of the following:

- Microprocessor or micro-controller (in a faulted condition) with instruction notes and diagrams.
- Appropriate test equipment.

1 Carry out a fault-finding procedure to identify a fault to component level. Complete a report sheet in detail, showing **each** of the following:

- Initial symptoms observed.
- Tests applied.
- Test results and conclusions drawn (which should indicate what the next test should be).
- Which component is faulty.

2 Repeat Task A1 on a second unit (of the same type) which has a different fault.

3 State **three** tests that can be carried out on a very large scale circuit (VSLI) to determine if it is serviceable or faulty.

Task B – Microprocessor or micro-controller – programming

You will be provided with:

- a personal computer with high level compiler, cross assembler, editor and download facilities
- a micro-controller board with suitable I/O
- a faulted source code test program
- information regarding the function of the source code test program
- instructions for the modifications required to the test program.

1 Identify and correct the faults in the source code test program provided. Obtain a printout of the corrected version source code.

2 Compile/assemble and download the corrected test program to the micro-controller and confirm that the micro-controller I/O responds correctly. Demonstrate this to your assessor, and state what occurs when the program runs.

3 Modify the test program as per the instructions given by your assessor. Obtain a printout of the source code for this new version.

4 Compile/assemble and download the modified test program to the micro-controller and confirm that the micro-controller I/O responds correctly. Demonstrate this to your assessor, and state what occurs when the program runs.

Task C – Short answer questions

Your assessor will now give you an answer sheet containing **five** short answer questions. Answer **all** of the questions and hand your answer sheet back to your assessor.

When you have finished working:

- Sign each document above your name and label all removable storage media with your name.
- Hand all paperwork and removable storage media to your assessor.

If the assignment is taken over more than one period, all paperwork and removable media must be returned to the test supervisor at the end of each sitting.

End of assignment

Published by City & Guilds
1 Giltspur Street
London
EC1A 9DD
T +44 (0)20 7294 2468
F +44 (0)20 7294 2400
www.cityandguilds.com

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