Level 2 Control and security systems for the digital home technology integrator (7575-005)

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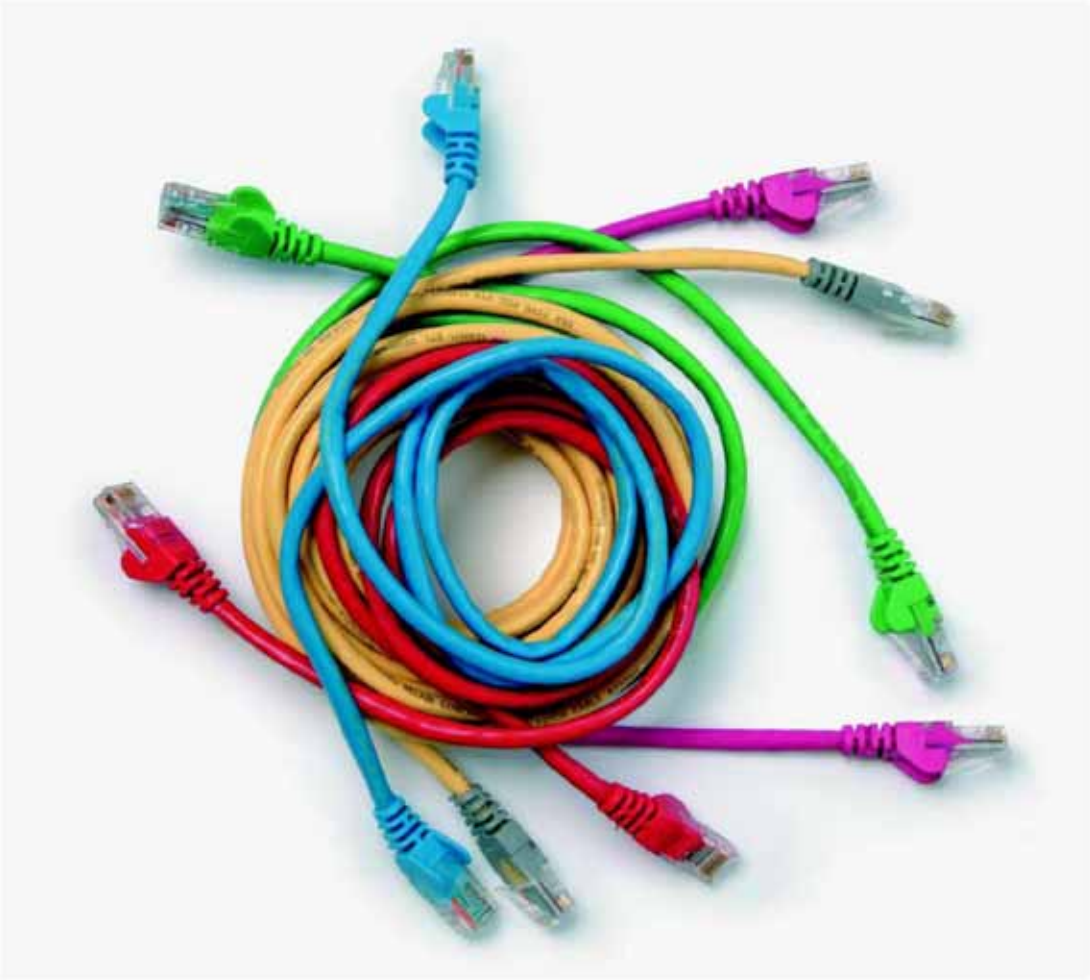
Assignment guide for Candidates

Assignment B



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Level 2 Control and security systems for the digital home technology integrator (7575-005)
Assignment B
Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 2 Control and security systems for the digital home technology integrator (7575-005)

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 2 Control and security systems for the digital home technology integrator (7575-005)

Candidate Instructions

Time allowance: 3 hours

Assignment set up:

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

Scenario

Qin Home Computing (QHC) is a company that specialises in providing and maintaining digital technology and security solutions in the home environment. The company has been approached by the owners of a small Guest House, to plan, install and configure a security and control system in the property.
The owners require the security and control solution to be fully integrated with the existing technology in the Guest House.

You are employed by QHC as a Technical Apprentice and have been tasked with producing plans for the installation, identifying all required hardware and software, installing, configuring and testing the agreed solution.

Customer Requirements

1. Fully integrate the proposed Control and Security system into the existing LAN – using either the wired or wireless media, or both.
2 Provide a CCTV solution monitoring the entrance and exit points for the building. The system must be able to view and record live images.
3 Provide motion detectors in the ground floor hallway, first floor corridor and stairway to allow the hallway lights to automatically switch on when motion is detected. These should be timed to go off, within a reasonable time after motion has ceased to be detected
4 Provide a camera system that monitors entry/exit points, storing the images with both on-site and remote access to the stored images.
5 Ensure that the network is secure.
6 Minimise and make good any damage to the decoration.
7 Minimise any additional surface cabling.

Notes

There is a “drop ceiling” in the Office, Reading Room and Lounge 2. This reduces the Floor to Ceiling height from 2900 mm to 2600 mm in these rooms.

There are adequate power supplies throughout the building and access points to mains power are available within the ceiling space of all floors.

The existing telephone wiring is CAT 5e cable, allowing for VOIP telephone calls.

Task A – Plan and document a Local Area Network to meet a customer's needs

Please use the Answer Sheet provided to complete Task A

Task A Using the customer requirements and the building plans, provided by your Assessor complete the following tasks:

1 Document and plan the features and services required by the customer covering:

- the functions that the customer requires to be automated/controlled
- the type of audio/visual monitoring system and the standards used
- the transmission media used by the proposed devices.

2 Identify and choose suitable products that are required to meet the customer requirements.

3

- specify the type(s) of transmission media to be used by each of the new devices
- specify any structural features that may affect the choice of transmission media
- specify the approximate distances between all the devices included in the new installation
- specify the type of home management and control system to be used
- specify the technical specifications of all additional devices to be installed
- specify any software required, including device drivers.

4 Illustrate, on the building plan provided:

- areas that need to be monitored/protected
- the location of all new devices and sensors
- the location of the proposed management and control system
- the location of existing devices that need to be integrated in to the network
- any cabling runs that are proposed.

5 Correctly specify **all** sources of information for the devices and components of the proposed LAN.

6 Identify and briefly explain **three** reasons for fully documenting all aspects of the proposed LAN.

Task B Install and configure a wired or wireless network in a home environment

Using the equipment supplied by your assessor:

1 Correctly terminate the length of Cat5e network cable provided, with an RJ45 connector at one end and an RJ45 socket at the other end.

2 Using a cable testing device:

- demonstrate to your Assessor that the connections are correctly connected
- record the test results on the Answer Sheet provided.

3 **Please use the Answer Sheet provided to complete Task B3**
Correctly identify the wiring standard used in the connections.

4 Using the equipment supplied by the Assessor:

- set up and configure two lights to operate via a movement sensor
- include a manual override switch (which turns the lights on and off) into the configuration
- configure the lights to switch off 15 seconds after movement has ceased to be detected.

5 **Please use the Answer Sheet provided to complete Task B5**
Specify the technical specifications of all devices to be installed.

6 Demonstrate the correct set up and configuration of the lights to the assessor.

7 Install a CCTV camera as a device on the customer's existing network linked to a PC or DVR.
Configure the appropriate network settings, including Device ID if required.

8 Configure the software on the remote device so that live images from the CCTV camera can be viewed and recorded.

9 Demonstrate to the Assessor that live images can be viewed and recorded.

10 Consistently work in a safe manner.

11 **Please use the Answer Sheet provided to complete Task B11**

- identify the IP addresses of the devices you have configured
- identify the subnet mask used
- identify the technical specifications of all devices to be installed
- identify the operational characteristics of all devices to be installed
- identify all network protocols
- identify any associated security features.

12 **Please use the Answer Sheet provided to complete Task B12**
Explain the terms:

- Surge suppression
- Power conditioning
- Security Zones.

Task C – Install and configure a wired or wireless Control System

1 Using the equipment supplied by the Assessor:

- set up and configure a wired / wireless control system to operate and maintain the security systems installed in Task B.

- correctly install and configure any associated software required.

2 Demonstrate to the Assessor:

- that the control system operates as intended for the security systems
- that any associated software has been correctly installed and configured.

Task D – Troubleshoot security and control home management systems

1 Using the network you have configured in Tasks B and C:

- demonstrate and explain to the Assessor how to troubleshoot an incorrect IP address and subnet mask on the network.

2 **Please use the Answer Sheet provided to complete Task D2**

Identify **three** software commands used in troubleshooting networks

3 **Please use the Answer Sheet provided to complete Task D3**

- identify and briefly explain two common causes of interference in a wireless network
- identify two protocols commonly used in security and control systems
- identify and briefly explain two common causes of false alarms in security and control systems.

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

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