Level 2 Install, configure and test ICT networks (7540-235)

Systems and Principles
Assignment guide for Candidates
Assignment D

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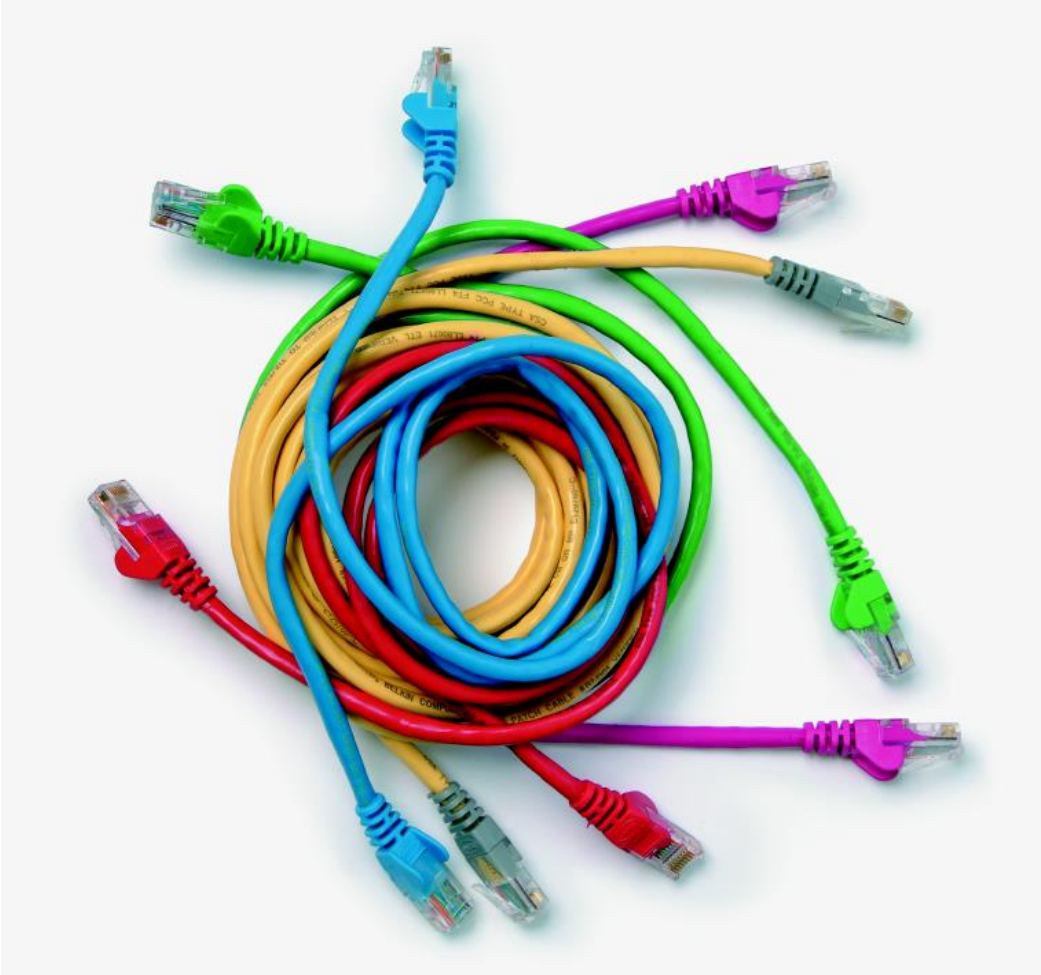

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Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 2 Install, configure and test ICT networks (7540-235).

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 **4 hours**.

Level 2 Install, configure and test ICT networks (7540-235)
Candidate instructions

Time allowance: 4 hours

Assignment set up:

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

- Task A – document and construct a typical LAN and WAN network
- Task B – troubleshoot a LAN and identify possible faults

Scenario

You are employed in the ICT Solutions Design Department. Your main role is to provide technical solutions to meet customers' networking requirements. You are also required to present the solutions to prospective clients and answer any technical questions they may have.

Your next project is to design and present a proposal to improve an existing Local Area Network (LAN) and Wide Area Network (WAN) at a local distribution business who wish to expand their current client base and improve the speed at which orders are completed.

Existing Network Setup
The existing LAN at both the central distribution site and the remote warehouse consists of a **bus** topology using co-axial cabling to connect approximately 20 PCs. Each PC connects to local printers using peer-to-peer sharing and the central site currently connects to the remote warehouse 5 miles away using an ISDN line. They do not have the facility to back-up any of the data at the moment. Both sites have business broadband access for Internet, email etc.

Client Requirements
The company wish to upgrade and expand the number of PCs (initially to a total of 50) at both the central distribution site and the remote warehouse. They require a modern structured network that can easily grow to meet future demands. They also want to deploy large multi-function networked printers (to replace the peer-to-peer shared printers) and two servers that can be accessed from both sites. They also want to look at wireless technology, initially for the tracking of stock in the warehouse environment. The client has indicated they wish to have a means of backing up all the data to the servers and want both sites to be able to operate independently of each other should connectivity be lost between the two sites. The link between the two sites needs to be upgraded and some form of back-up link put in place for resilience should the main link fail.

Read all of the instructions carefully and complete the tasks in the order given.

Task A – document and construct a typical LAN and WAN network

1 Using an appropriate method, document the existing network setup. This can take the form of a logical network diagram. Label this 408 Task A1 Existing Network.

2 Using the information detailed in the **Client Requirements**, produce a proposal that provides a suitable solution. Label this **408 Task A2 Proposal**. You can assume that adequate budget exists. Your proposal must cover the following areas:

- Logical topology ie bus, ring, star, mesh etc.
- Cabling infrastructure ie cable type, cable specification, data outlets, patch panels, patch leads, data cabinets, containment etc.
- Active data equipment ie switches, routers.
- Network printing.
- Server location/s.
- Wireless technology.
- Back-up methodology.
- A suitable private IP addressing scheme.
- WAN connectivity.

3 Using an appropriate method, document the proposed network setup. This can take the form of a logical network diagram. Label this **408 Task A3 Proposed Network**.

or

Using the networking equipment supplied by your assessor, construct the proposed network setup in order to demonstrate the connectivity to your clients. It is not necessary to power up any of the equipment. You should use suitable cables if available as it is important your client can visualise the proposed network. Demonstrate to your assessor how the proposed LAN and WAN network is connected.

Q1 List **four** networking topologies.

Q2 Identify layers **2 to 7** of the OSI model.

Task B – troubleshoot a LAN and identify possible faults

1 **Using an appropriate networking troubleshooting utility (ie ipconfig, ping, tracert etc) on the LAN setup provided by your assessor, diagnose the connectivity problem currently being encountered on the network.**

2 You must demonstrate your use of the appropriate networking troubleshooting utility and provide a screen print as evidence. Label this **408 Task B1 Troubleshooting**.

3 Having identified the problem, use an appropriate method to resolve the issue encountered in Task B2 and using an appropriate networking troubleshooting utility (ie **ping, tracert, netstat** etc) provide a screen print as evidence of the resolved problem. Label this **408 Task B3 Problem Resolved**.

Q3 List **six** items (tools/materials) typically required for creating a network cable.

Q4 List **three** security measures used on a network.

Q5 Define what a network is and what its main goals are.

Q6 State the difference between a LAN and a WAN.

Q7 State the purpose of subnetting.

4 Hand all paperwork and removable storage media to your Assessor. Ensure that your name is clearly identified on your work.

5 Sign above your name and hand all paperwork to your Assessor.

End of assignment

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