T Level Technical Qualification in Digital Support Services

Occupational specialism assessment (OSA)

Network Cabling

Assignment 3

Assignment brief

NCFE

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Contents

About this assignment

Introduction

This assignment is set by NCFE and administered by your provider over 3 days. The times and dates will be specified by NCFE.

The assignment will be completed under supervised conditions.

You must complete all tasks in this assignment independently. You are required to sign a declaration of authenticity to confirm that the work is your own. This is to ensure authenticity and to prevent potential malpractice and maladministration. If any evidence was found not to be your own work, it could impact your overall grade.

Internet access is **not** allowed.

Take all photographs using the digital camera provided by your provider. Use of mobile phones is **not** permitted.

Timing

You have 5 hours 30 minutes to complete all tasks within this assignment.

Task 1 = 1 hour 30 minutes (this task will be completed in one session)

Task 2 = 2 hours (this will be provided after completion of task 1 and be completed in one session)

Task 3 = 2 hours (this will be provided after completion of task 2 and be completed in one session)

Individual tasks must be completed within the timescales stated for each task, but it is up to you how long you spend on each part of the task; therefore, be careful to manage your time appropriately.

Marks available

Across all assignment 3 tasks: 61 marks

Details on the marks available are provided in each task.

You should attempt to complete all of the tasks.

Read the instructions provided carefully.

Submit all evidence in .pdf format using the file naming convention: Surname_Initial_student number_evidence reference (for example, Smith_J_123456789_Task 1).

Performance outcomes (POs)

Marks will be awarded against the skills and knowledge performance outcomes (POs) as follows:

Task 1

(25 marks)

PO1: Apply procedures and controls to maintain the digital security of an organisation and its data (4 marks)

PO2: Install and test cabling in line with technical and security requirements (21 marks)

Task 2

(20 marks)

PO2: Install and test cabling in line with technical and security requirements (16 marks)

PO3: Discover, evaluate and apply reliable sources of knowledge (4 marks)

Task 3

(16 marks)

PO1: Apply procedures and controls to maintain the digital security of an organisation and its data (12 marks)

PO3: Discover, evaluate and apply reliable sources of knowledge (4 marks)

Scenario

You have just moved from working on the helpdesk for your organisation to now working within the network team.

Your manager has approached you regarding the network and would like you to verify its functionality.

You must complete a range of implementation, monitoring and testing tasks. You must also make sure that you document all work appropriately to meet organisation quality standards and best working practice.

There are 3 tasks to complete.

Task 1: troubleshooting faulty cables

Time limit

1 hour 30 minutes

You can use the time how you want but all parts of the task must be completed within the time limit.

(25 marks)

During an inspection, your manager has identified 5 faulty straight-through cables.

The cables have various problems that need troubleshooting before they can be used in a cabling installation.

Issues you may encounter include latency, jitter, cross talk, poor connections and 'wear and tear' in the cables.

You are required to:

- test the cables to find and fix the faults in accordance with TIA/EIA-568 standards

- document the faults in the test plan template provided and record suitable solutions

- fix the fault on each cable and document the test results in the test plan template

- provide photographic evidence of the corrected cables and cable tester results then document this in the test plan template

You will have access to the following equipment:

- 5 cables (different colours and problems)

- digital cable tester

- crimping tools

- RJ45 connectors

- hand-held cable/network tester

- digital camera

- word processing software

Evidence required for submission to NCFE

Completed test plan template in .pdf format.

For each cable, you need to provide in .pdf format:

- a clear photograph showing a close-up of the RJ45 connector and the corrected wires within it, with the coloured cable clearly visible

- a photograph of the read-out from the cable tester showing the full results of testing, with the coloured cable clearly visible

Task 2: troubleshooting the proposed cabling installation

Time limit

2 hours

You can use the time how you want but all parts of the task must be completed within the time limit.

(20 marks)

You have recently joined the networking team in your organisation and are working on a project for a new client. The client recently had a new network built by another organisation but cancelled the contract because of several problems. The client has now approached your organisation to solve the problems.

You are to perform thorough testing of all cabling on the network to identify and fix any faults identified prior to the client conducting their user acceptance testing (UAT). You will record the results in a test plan.

You will be using the Cisco Packet Tracer file that you have been provided with to carry out testing. You must make sure that data can be transmitted across all devices on the network.

Using the Cisco Packet Tracer file provided, identify, rectify and record any faults on the modified network, in accordance with TIA/EIA-568 standards.

You must:

- write a brief description of how you will analyse, interpret and solve any issues that arise from the troubleshooting process – 4 marks are available for this element of the task

- document your troubleshooting in a logical order, demonstrating that no aspect of troubleshooting and analysis has been omitted

- use the test plan template provided to record the results of the troubleshooting

You will have access to the following equipment:

- word processing software

- Cisco Packet Tracer software

- Cisco Packet Tracer file

Evidence required for submission to NCFE

- screenshots of all issues identified and resolved within the Cisco Packet Tracer file, in .pdf format (this must be a before and after screenshot)

- completed test plan template in .pdf format

- written description of analysis and interpretation of issues, as well as solution of issues

Task 3: carry out a risk assessment of the client's network

Time limit

2 hours

(16 marks)

You have been asked by your manager to support your new client with their new network. They are currently concerned about a rise in cyber-attacks and would like you to complete a risk assessment of their network.

At present, these are the things you have identified:

- the building is currently located in the centre of Newcastle, which has lots of footfall and crime is currently on the rise due to living costs

- the building only has one entrance, which is the main door

- the waiting area is only slightly separated from the main office

- the router currently has multiple roles: router, DHCP server and firewall

- the staff wireless network can be discovered by a wireless analyser 15m outside of the office

- users are accessing Microsoft 365 on a daily basis and are concerned there is no extra security on their accounts

- staff are concerned with how they access the building, as only the sales manager has a key to unlock and lock the office

- there are currently no security measures in place, no lock on the communications cabinet and no CCTV or security guard

The company has a large budget to pay for any changes that you recommend as a result of your risk assessment.

Your risk assessment should include:

- identification of possible threats to the network

- vulnerability related to threats identified

- assets at risk

- impact if threats are exploited

- likelihood that threats are exploited

- overall risk to business

- recommended action

- type of control implemented as mitigation

You should consider:

- the information provided by your manager above

- both internal and external cabling

- security of the network

- all hardware network components

- documentation to support mitigation

You will have access to the following:

- word processing software

- risk assessment template

Evidence required for submission to NCFE

Completed risk assessment document.

Document information

Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Additional sample material		01 September 2023
v1.1	Sample added as watermark	November 2023	16 November 2023