T Level Technical Qualification in Digital Support Services

Employer set project (ESP)

Core skills

Digital Infrastructure & Network Cabling

Project brief - Task 1

Paper number: P001651
9th May 2023
603/6901/2

T Level Technical Qualification in Digital Support Services
Employer set project (ESP)

Core skills

Project brief

Digital Infrastructure & Network Cabling

Contents

Student instructions

- read the project brief carefully before starting your work
- you must work independently and make your own decisions as to how to approach the tasks within the employer set project
- you must clearly name and date all of the work that you produce during each supervised session
- you must hand over all of your work to your tutor at the end of each supervised session
- you must not work on the assessment in between supervised sessions

Student information

- the employer set project will assess your knowledge, understanding and skills from across the core content of the qualification
- in order to achieve a grade for the core component, you must attempt both of the external examinations and the employer set project
- the combined marks from these assessments will be aggregated to form the overall core component grade (A* to E and U) – if you do not attempt one of the assessments, or fail to reach the minimum standard across all assessments, you will receive a U grade
- the maximum time you will have to complete all tasks for the employer set project is 12 hours 10 minutes:
    - your tutor will explain how this time is broken down per task and will confirm with you if individual tasks need to be completed across multiple sessions
    - at the end of each supervised session, your tutor will collect all employer set project assessment materials before you leave the room
    - you must not take any assessment material outside of the room (for example, via a physical memory device)
    - you must not upload any work produced to any platform that will allow you to access materials outside of the supervised sessions (including email)
- you can fail to achieve marks if you do not fully meet the requirements of the task, or equally if you are not able to efficiently meet the requirements of the task
- the project is assessed out of a total of 76 marks (this includes 2 marks for your use of mathematics in task 3, and 4 marks for your use of English throughout tasks 2, 3 and 4) – the individual task marks are also shown throughout the project brief booklet at the start of each task

Plagiarism

Plagiarism may result in the external assessment task being awarded a U grade.

Presentation of work

- all of your work should be completed electronically using black font, Arial size 12pt unless otherwise specified
- any work not produced electronically must be agreed with your tutor, in which case the evidence you produce should be scanned and submitted electronically
- all your work should be clearly labelled with the relevant task number and your student details and be legible (for example, front page and headers)
- electronic files should be named using the following format – Surname_Initial_student number_evidence reference for example: Smith_J_123456789_Task1 for identification purposes – where evidence reference is shown, this should be replaced with the task number for which the work reflects and saved as a .pdf format
- all pages of your work should be numbered in the format page X of Y, where X is the page number and Y is the total number of pages
- you must complete and sign the external assessment cover sheet (EACS) – declaration of authenticity form and include it at the front of your assessment task evidence
- you must submit your evidence to the supervisor at the end of each session

Scenario

The David-David Foundation work across the north east of England providing additional support for care providers. They have recently opened an office in Newcastle upon Tyne.

The office users connect via a virtual private network (VPN) connection on their device. Due to the sensitive nature of their work, everything must be stored on servers within the organisation. Saving of documents without a VPN is discouraged. The staff are classed as remote workers but share the network infrastructure with head office. The office has its own dedicated internet connection, but traffic is routed over the VPN for security.

Staff have been complaining that their individual software VPN connection drops out and sometimes will not reconnect. Currently, the connection between the Newcastle office and head office is offline. When trying to establish the VPN connection, staff get the error message ‘The connection was terminated by the remote computer before it could be completed’. This is managed locally on each user’s machine using a software VPN connection.

Brief

As you are a 3rd line engineer this has been escalated to you to fault find and resolve. Once you have resolved the initial connectivity issue, you should suggest an improved solution that will support the wider infrastructure project you are working on, with the aim of allowing the remote staff in Newcastle to work with the resources in head office.

Task 1: 2 hours 30 minutes

You must read the information on all pages provided for this task before starting your response.

(22 marks)

Scenario

Your line manager has asked you to investigate the issues the Newcastle staff are having. As you are working remotely, you have been provided with topology diagrams (control documents A and B) that show the current network configuration. These will allow you to troubleshoot issues and plan your changes to the network. You also have a copy of the current configuration page (control document C) for the router firewall. Due to the sensitive nature of the work involved, you must consider the security of the information at all times. Information governance is key when considering your solution.

Instructions for students

Using the information provided above and in control documents A, B and C, you should investigate and identify the root cause of the issue.

You should produce:

- recommendations of steps to resolve the fault on control document C (6 marks)
- a test plan document (16 marks) for use when troubleshooting network connectivity issues

You should consider:

- use of troubleshooting frameworks
- tools used during the troubleshooting process

Your test plan document should include:

- user details
- test dates
- computer specification and software
- proposed tests
- expected/actual outcomes of tests
- ability to record changes based on test outcomes
- record of diagnosis
- user acceptance of work completed

Evidence required for submission to NCFE

- firewall configuration document (control document C) with any of your proposed changes in .pdf format. Changes to settings should be clearly explained

- test plan document to be submitted at the end of task 1 in .pdf format

When you have completed this task, you should save in a .pdf format, and name your file:

- Surname_Initial_student number_evidence reference for example: Smith_J_123456789_Task1

Additional guidance

For this task you will be issued with control documents A, B and C.

You will have access to a word processing application or other suitable software to enable you to complete this task.

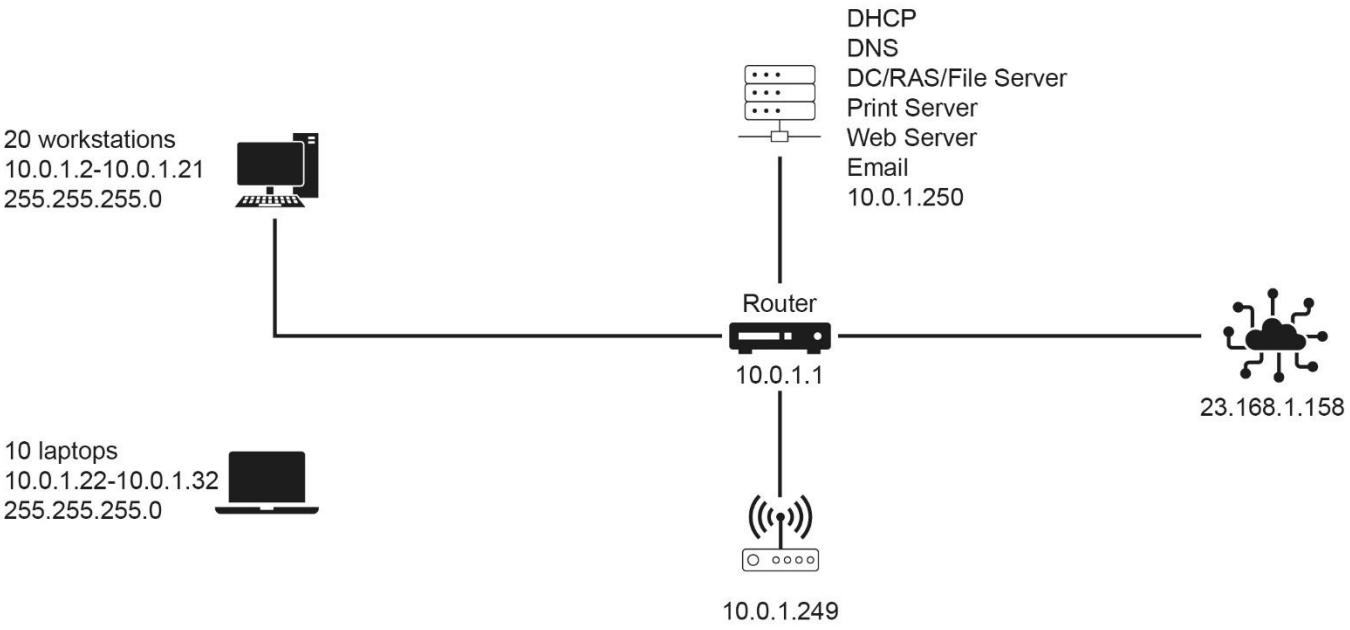
Access to the internet is permitted.

Access to any online cloud storage is not permitted.

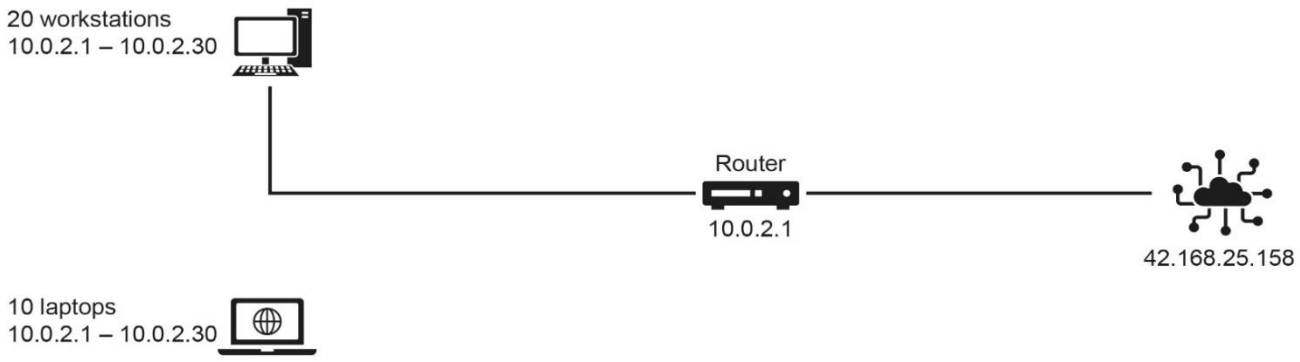
Use of online chat or emails is not permitted.

Access to previous class notes/teaching materials is not permitted.

Control document A: logical topology diagram – Head office (task 1)



Control document B: logical topology diagram – Newcastle office (task 1)



Control document C: TechSys router port forwarding configuration (task 1)

Enable	Service	Protocol	External IP	Internal IP	External port	Internal port
☒	HTTP	TCP	*	10.0.1.2	80	80
☒	POP3	TCP	*	10.0.1.2	143	143
☒	SMTP	TCP	*	10.0.1.2	25	25
☐	-------	UDP	0.0.0.0	0.0.0.0	-----	-----
☐	-------	Select Protocol	0.0.0.0	0.0.0.0	-----	-----
☒	DENY	ANY	*	*	*	*
☒	VPN	ANY	*	10.0.1.3	1720	1720

Document information

Owner: Head of Assessment Design.