Level 3 Network management and security (7540-363)

Systems and Principles
Assignment guide for Candidates
Assignment B

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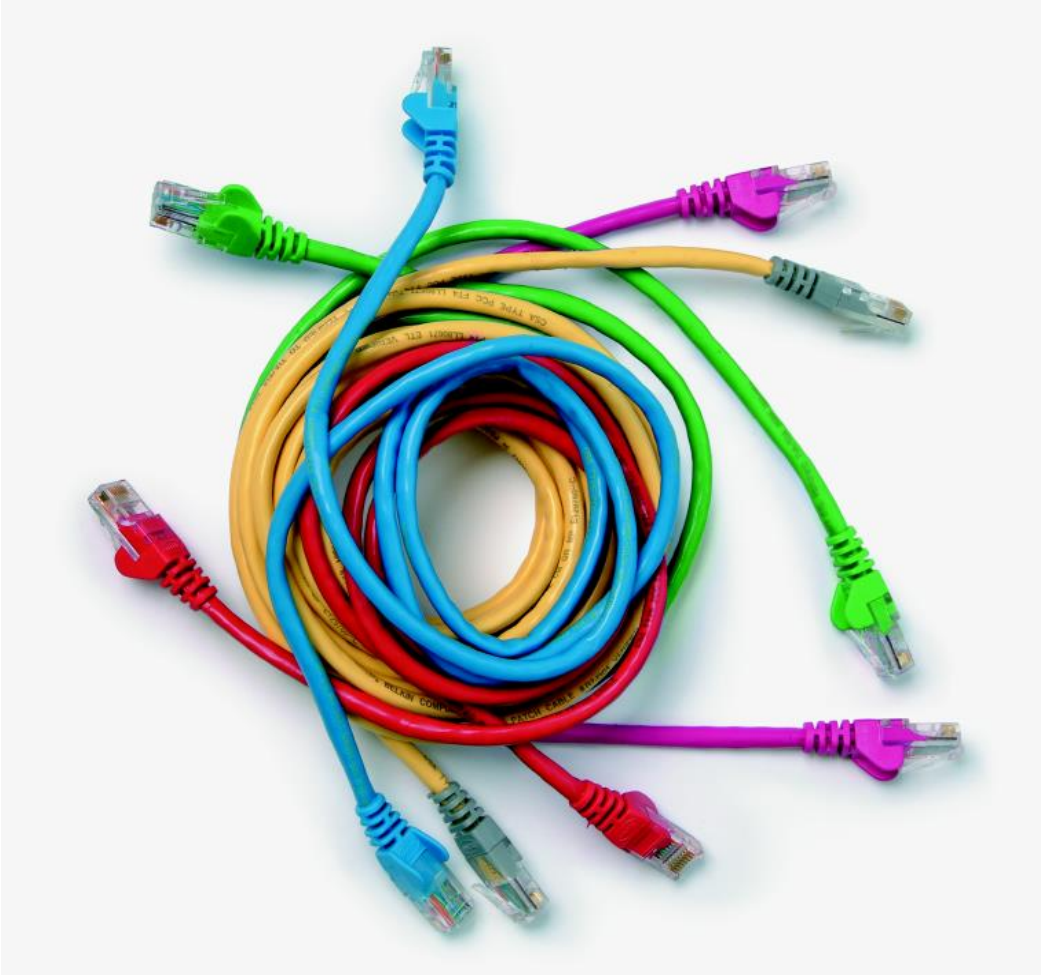

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Introduction – Information for Candidates

About this document

This assignment comprises all of the assessment for Level 3 Network management and security (7540-363).

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 Network management and security (7540-363)

Candidate Instructions

Time allowance: 3 hours

Assignment set up:

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

- Task A – Create "Dictionary of Terminology" material for inclusion in a Network Technician's guide.
- Task B – Demonstrate Network Configuration and Monitoring.

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Scenario

You are employed as a Network Technician at QIM Networks; a company specialising in network design and installation.

You have been asked by your line manager to provide information for several sections of their Networking Guide which is being compiled for future Apprentices and Junior Technicians, based on the OSI model.

Any definitions you provide should use non-technical language wherever possible, including describing technical terms, components or devices.

Where you use technical terminology in a definition, you should also provide an explanation of the terminology.

Task A – Create "Dictionary of Terminology" material for inclusion in a Network Technician's guide.

Please use the Answer sheet provided to complete Task A

1 Identify and briefly explain the purpose of **each** layer in the OSI 7 layer model.

2 Identify a single network device that operates in each of the following layers:

- Layer 1
- Layer 2
- Layer 3.

Describe the purpose of **each** device identified

3 Identify **three** network devices which can be remotely managed.

4 Explain the following terms when considering network congestion:

- Delay
- Jitter

Give examples of how delay and jitter may affect **two** different software applications using the network.

5 Briefly explain the following terms

- Mean Time Between Failure (MTBF)
- Mean Time to Repair (MTTR)
- Up-Time
- Down-Time
- Useful Life Cycle
- Single point of failure

6 Explain the relationship between MTBF and redundancy

7 Explain the relationship between MTTR and failover

8 In terms of a business network, identify **two** common "Unauthorised Applications" and explain the effect they may have.

9 Describe **three** situations where it would be desirable to deploy "Redundant Systems"

Task B – Demonstrate Network Configuration and Monitoring.

1 Connect and configure the network equipment provided, to create **two** broadcast domains.

Explain to the assessor the effects of broadcast traffic on an IP Network

Explain to the assessor the effect of using hubs instead of switches on an IP Network

2 Demonstrate to the assessor the configuration of the following routing protocols:

- RIP
- OSPF
- EIGRP

Explain to the assessor the operation of these routing protocols, identifying any advantages and shortcomings.

3 Install and configure a Network Protocol Analyser (sniffer).

Generate network traffic and perform a capture using the Analyser.

Explain to the assessor how the Network Protocol Analyser may be used to monitor networks and identify problems.

4 Set up and configure QoS to prioritise voice traffic on the network.

Explain to the assessor how filters may be applied in QoS to address congestion issues.

5 Demonstrate to the assessor the use of Network Management Software to remotely configure network operating parameters in real time.

Explain to the assessor the operation of the **three** key components of a Network Management Protocol.

6 Demonstrate to the assessor the use of SNMP to capture information about the behaviour of the network.

Explain to the assessor **one** drawback of using SNMP.

7 **Please use the Answer sheet provided to complete Task B7**
Explain the function of the MIB (Management Information Base)

8 **Please use the Answer sheet provided to complete Task B8**
Explain the term "Congestion" as applied to a network.

Identify adverse effects that congestion may have on **three** different types of network traffic.

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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