Level 2 Systems architecture (7540-013)

Assignment guide for Candidates

Assignment B

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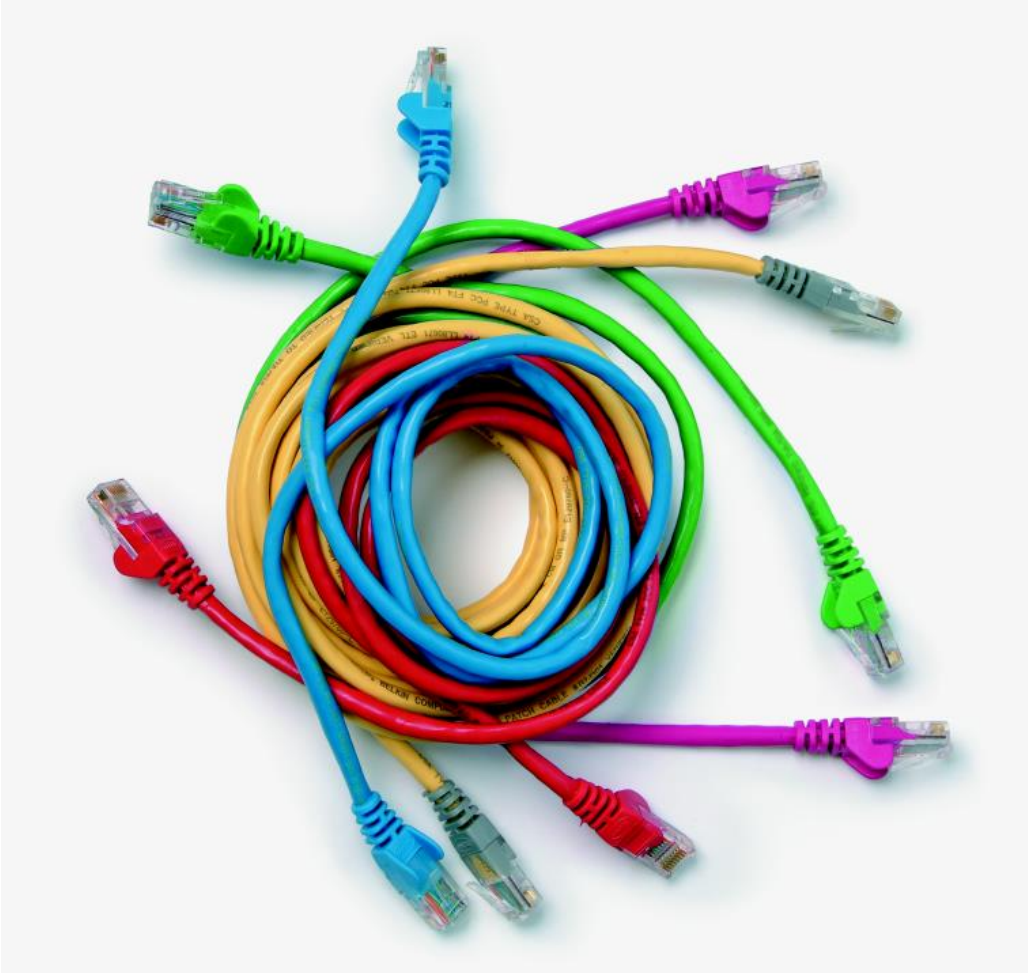

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Introduction – Information for Candidates

About this document
This assignment comprises all of the assessment for Level 2 Systems architecture (7540-013).

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 **2 hours**.

Level 2 Systems architecture (7540-013)

Candidate instructions

Candidates are advised to read **all instructions** carefully before starting work and to check with the assessor, if necessary, to ensure that you have fully understood what is required.

Time allowance: 2 hours

This assignment is made up of **three** tasks.

- Task A – Operating Systems
- Task B – Computer Systems and Devices
- Task C – Demonstrate Operating System interfaces and functions

Scenario

You are employed as a Technical Apprentice in a multi-national Company which operates within the Financial Services Sector. The company maintains an Intranet, with one section devoted to internal 'FAQs' (frequently asked questions). A number of requests have recently been posted, asking for simple explanations of different aspects of "Systems Architecture" in computing.

Your excellent technical knowledge has led to the 'Webmaster' (who is also your line manager) requesting that you provide answers for them to post, in reply to the questions.

Your answers should be short but detailed; using sketches / diagrams where appropriate or requested and using simple, everyday language wherever possible.

Any sketches / diagrams may be hand drawn or produced using a computer.

Task A – Operating Systems

Please use the Answer Sheet provided to complete Task A.

1 Briefly explain how a "Distributed Operating System" works.

2 Identify and explain **three** of the main functions of a Distributed Operating System.

3 Explain the role "Data Communications Systems" have in enabling both Network and Distributed Operating Systems; e.g. OSI Seven Layer Model.

4 Explain how **two** of the Operating System security features listed below can contribute to both data and system security.

- passwords
- access rights
- permissions
- firewalls.

5 Explain the terms "Multitasking" and "Multiprogramming".

6 Briefly explain the following Operating System processes:

- memory management
- file management
- storage protection methods
- deadlock.

7 For an operating system you are familiar with, identify and briefly explain how to end a process that has deadlocked / frozen.

Task B – Computer Systems and Devices

Please use the Answer Sheet provided to complete Task B.

1 Explain the role of the following in a modern computer system, giving **two** examples of each:

- input devices
- output devices
- storage devices
- peripheral devices.

2 Explain how the following number systems store information in a computer system:

- ASCII
- Binary
- Hexadecimal.

3 Draw a simple block diagram of the Central Processing Unit (CPU) explaining the function of **each** component.

4 Draw a diagram explaining the Fetch Execute Cycle.

Task C – Demonstrate Operating System interfaces and functions

[take screen prints to demonstrate the following]

1 Using the text editor that is part of the Operating System available to you: create, name and save a simple ASCII text file.

2 Using the GUI (graphical user interface) of the Operating System available to you: copy this text file to a different storage location.

3 Using the CLI (command line interface) of the Operating System available to you: rename the copied version of the text file you created.

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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