

# WJEC GCE A Level

## Information and Communication Technology

### IT3 – Use and Impact of ICT

This module is split into nine topic areas. Each of which are listed below. Memorisation of marking schemes is essential for this unit, as is the case with IT1, precision of answers is very important. Marking schemes can be found at [jacktilson.net](http://jacktilson.net)

This document presents all existing exam questions for this specification categorically, and does so in the order listed below.

**Viewing this digitally? Click a topic from the list to go straight to the relevant questions!**

1. Networks
2. The Internet
3. Human Computer Interfaces
4. Working with ICT
5. Security Policies
6. Database Systems
7. Management of Change
8. Management Information Systems
9. System Development Life Cycle





## **Past Paper Questions**

### **IT3 – Topic 1 – Networks**

Mark Schemes available at *jacktilson.net*

IT3 Specimen

3. (a) Other than cost or security issues, explain in detail **two** factors that could influence the choice of a computer network for a company. [4]
- (b) Two types of network that could be used are *peer to peer* and *client server*. Compare and contrast these **two** types of network. [4]

IT3 January 2010

2. A company has moved into an old building and has decided to install a network.
- (a) Compare and contrast the relative advantages and disadvantages of ring and star topologies. [6]

The company is considering using a wireless network.

- (b) Describe **two** advantages and **two** disadvantages for the company of using a wireless network over a cabled network. [4]

IT3 June 2010

2. Network topologies have different properties.
- (a) Draw and label a star network. [2]
- (b) State **two** advantages of a ring network. [2]
- (c) Other than topology issues, discuss in detail **three** factors that will influence the choice of a network. [6]

IT3 January 2011

**Question C.**

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 Other than cost or size of the organisation, explain in detail **three** factors that could influence the choice of a computer network for the organisation. [6]
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 Peer-to-peer and client server are two types of computer network. Compare and contrast the **two** types of network. [6]

IT3 June 2011

**Question B.** When designing a network for a company, the likely topology is one of the areas to be looked at.

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 Compare and contrast the relative advantages and disadvantages of ring and star topologies. [6]
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 A network manager uses remote management when managing the network. Describe **four** tasks that the network manager could do using remote management. [4]

IT3 January 2012

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 Other than *cost* or *security issues*, explain in detail **two** factors that could influence the choice of a network for a company. [2 x 2]

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 Discuss the relative advantages and disadvantages of ring and star topologies. [6]

IT3 June 2012

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 Describe what is meant by the term *network topology*. [2]

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 Other than *topology* or *cost*, explain in detail **three** other factors which influence the choice of a network. [6]

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*Peer-to-peer* and *client server* networks are two types of network. Compare and contrast these two types of network. [6]

IT3 January 2013

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 A company needs to change its network. Compare and contrast *client server* versus *peer to peer* networks for the company. [6]

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 An organisation is considering using a wireless network. Describe **two** advantages and **two** disadvantages for the organisation of using a wireless network over a cable network. [4]

IT3 June 2013

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 A company is considering changing its network. Other than *topology issues*, describe in detail **three** factors that will influence the choice of a network. [6]

0	7
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 A network manager uses *remote management* when managing the network. Describe **four** tasks that the network manager could do using remote management. [4]

IT3 January 2014

- 0 2 A local company needs a new network. Other than *cost* or *topology*, describe in detail **three** factors that they should take into account when choosing the new network. [3×2]
- 0 3 Discuss the relative *advantages* and *disadvantages* of *ring* and *star* topologies. [6]
- 0 5 A network manager uses remote management when managing the network. Describe **six** tasks that the network manager could do using remote management. [6]

IT3 June 2014

- 0 3 A company is considering installing a wireless network. Describe **two** *advantages* and **two** *disadvantages* for the *company*, other than health concerns, of using a wireless network over a cabled network. [4]
- 0 4 *Peer-to-peer* and *client server* networks are two types of network. Compare and contrast these two types of network. [6]

IT3 June 2015

- 0 4 A system analyst has been asked to update a company's network. Discuss the relative advantages and disadvantages of **peer-to-peer** and **client server** network configuration he would include in his feasibility report. [6]
- 0 5 The network infrastructure of a school needs updating. The network manager is considering installing a wireless network. Discuss the advantages and disadvantages to the school of using a wireless network. [4]
- 0 6 The school is based on a number of sites and consequently the network manager needs to use remote management to simplify his job. Describe **five** tasks that the network manager could carry out using remote management. [5]

IT3 June 2016

- 0 3 A large organisation has decided that they need to update their network. Other than cost or the size of the organisation, describe in detail, **three** factors that they have to take into account when choosing their new network. [3×2]
- 0 4 *Ring* and *star* topologies are still used when designing networks; one benefit of star networks is that they are fault tolerant. Discuss other relative *benefits* and *drawbacks* of using these topologies. [6]



## **Past Paper Questions**

### **IT3 – Topic 2 – The Internet**

Mark Schemes available at *jacktilson.net*

IT3 Specimen

2. A pet shop wishes to offer customers an interactive on-line shopping service.
  - (a) Other than hardware, discuss in suitable detail, **four** requirements needed to implement such an interactive on-line shopping service. [4]
  - (b)
    - (i) Give **two** advantages to the *customer* of on-line shopping. [2]
    - (ii) Give **two** advantages to the *business* of on-line shopping. [2]
    - (iii) Describe **two** possible problems when shopping on-line. [2]
4. Other than crime, discuss in detail **two** of the major moral, social or ethical issues associated with the *Internet*. Use distinctly different examples in **each** case. [8]

IT3 January 2010

4. An organisation has a website on the internet to advertise its products and allow customers to order online.
  - (a) Define and explain **two** methods by which a customer could find the website using the Internet. [4]
  - (b) Explain, by giving an example, how **each** of the following could be used by the organisation:
    - (i) File transfer protocol (FTP); [2]
    - (ii) On-line databases. [2]
5. Many large research projects make use of distributed computing using the Internet.
  - (a) Explain what is meant by distributed computing. [3]
  - (b) Describe an application where distributed computing is used. [2]
  - (c) State the advantages and disadvantages of distributed computing. [4]
9. '*There is no effective ownership or control of the Internet*'.  
Discuss, with suitable examples, whether you consider this statement to be true or false. [8]

IT3 June 2010

3. Many organisations use the Internet for commercial activity. Describe the facilities that an organisation has to put in place in order to turn its web site into an e-commerce operation. [4]
8. The Internet, whilst bringing a number of benefits to society has also raised a number of issues. Discuss in detail moral, social or ethical issues associated with the use of the Internet. Illustrate your answers with distinctly different examples for **each** issue. [8]



IT3 January 2011

**Question B.** A multi-national company uses FTP.

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|---|---|--|-----|
| 0 | 2 | Describe in detail what is meant by FTP.   | [2] |
| 0 | 3 | Describe an advantage it gives the company and give an example of its use.<br>The company also makes use of the internet.<br>Define and explain how the following can be used to access information: | [2] |
| 0 | 4 | URL (Uniform Resource Locator)   | [2] |
| 0 | 5 | Web crawler  | [2] |
| 0 | 6 | Boolean search.  | [2] |

**Question D.**

- |   |   |  |     |
|---|---|--|-----|
| 0 | 9 | Parents of young children are very concerned about the lack of control of the internet. Discuss, using suitable examples, their likely concerns. | [8] |
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IT3 June 2011

**Question D.** Some large data processing projects make use of *distributed computing*.

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|---|---|--|-----|
| 0 | 7 | Explain what is meant by distributed computing.                  | [2] |
| 0 | 8 | State the advantages and disadvantages of distributed computing. | [4] |

**Question E.** A multi-national company uses a website for its e-commerce activities.

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|---|----|--|-----|
| 0 | 9  | Define <b>two</b> methods by which a customer could find the website and explain how each might be used to find the website on the internet. | [4] |
| 0 | 10 | Describe the <b>four</b> main requirements the company has to put in place for this website to be used for interactive online shopping.      | [4] |

**Question K.**

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| 2 | 2 | The use of the internet causes major moral, social and ethical issues. Discuss using appropriate examples these issues and the effect that they are having on modern society. | [18] |
|---|---|---|------|

IT3 January 2012

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 Discuss the advantages and disadvantages of *dialup* and *broadband* connections when using the Internet. [4]
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 Mobile access to the Internet has led to changes in *work patterns*. Describe the advantages and disadvantages, for the worker of mobile access to the Internet. [5]
- |   |   |
|---|---|
| 1 | 1 |
|---|---|

 Explain what is meant by *distributed computing* and describe an application which uses it. [5]
- |   |   |
|---|---|
| 1 | 2 |
|---|---|

 Discuss the advantages and disadvantages of distributed computing. [4]
- |   |   |
|---|---|
| 1 | 5 |
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 The Internet has had a huge impact on businesses and the way they operate. Evaluate the impact that e-commerce has had on businesses and their customers. [10]
- |   |   |
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| 1 | 6 |
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 Society is concerned that there is no real ownership or control of the Internet. Using suitable examples, discuss these concerns. [7]

IT3 June 2012

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 A shop selling memorabilia already has a website and computer systems. The shop owner wants to expand and offer the customers an on-line shopping service. Describe in detail **four** main requirements needed for an efficient on-line shopping service. [4]
- |   |   |
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 Discuss the advantages and disadvantages of on-line shopping to both the *business* and the *customer*. [7]
- |   |   |
|---|---|
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 Parents are concerned about the lack of control of the Internet. Discuss, using suitable examples, their likely concerns. [8]
- |   |   |
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 A bank uses File Transfer Protocol (FTP). Describe in detail what is meant by FTP, state a use and give an advantage to the bank of using FTP. [4]

IT3 January 2013

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 A company already advertises its products on their website. Describe the **four** main requirements the company has to put in place so that the website can be used for interactive online shopping. [4]
- |   |   |
|---|---|
| 0 | 8 |
|---|---|

 Discuss *different* advantages and disadvantages that e-commerce brings **both** to the company and to the customer. [8]
- |   |   |
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 “*Nobody really owns the Internet or tries to control it.*” Discuss with suitable examples, whether you think that this statement is true or false. [8]

IT3 June 2013

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|---|---|
- An international company makes use of *File Transfer Protocols* (FTPs). Describe in detail what is meant by FTP. Give **one** example of its use and describe **one** advantage for the company. [4]
- |   |   |
|---|---|
| 0 | 6 |
|---|---|
- A small business only has *dialup* access to the Internet. It is considering signing up for *broadband*. Discuss the relative advantages and disadvantages that dialup and broadband give the business. [4]
- |   |   |
|---|---|
| 0 | 9 |
|---|---|
- The Internet has helped the increase in distributed computing. Explain what is meant by *distributed computing*. [3]
- |   |   |
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| 1 | 0 |
|---|---|
- Describe briefly an application which uses distributed computing. [2]
- |   |   |
|---|---|
| 1 | 1 |
|---|---|
- Discuss the advantages and disadvantages of distributed computing. [4]
- |   |   |
|---|---|
| 1 | 4 |
|---|---|
- “*The growth in social networking sites and other entertainment sites has led to many concerns about the privacy, security and abuse of personal data on the Internet.*”
- Describe using suitable *different* examples, some of these concerns. [18]

IT3 January 2014

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| 0 | 6 |
|---|---|
- Discuss the *advantages* and *disadvantages* of *dialup* and *broadband* connections when using the Internet. [6]
- |   |   |
|---|---|
| 1 | 0 |
|---|---|
- Other than *being able to work from anywhere*, describe the *advantages* and *disadvantages* for the worker of mobile access to the Internet. [4]
- |   |   |
|---|---|
| 1 | 1 |
|---|---|
- A company already has a website and a network. Describe in detail the **four** main requirements that they need to put in place to enable them to offer an on-line shopping facility to customers. [4]
- |   |   |
|---|---|
| 1 | 2 |
|---|---|
- Discuss the *advantages* and *disadvantages* of on-line shopping to both the company and the customer. [8]

IT3 June 2014

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|---|---|
| 0 | 7 |
|---|---|
- Many large data processing projects now make use of distributed computing. Explain what is meant by *distributed computing* and describe an application which uses it. [5]
- |   |   |
|---|---|
| 0 | 8 |
|---|---|
- Discuss the *advantages* and *disadvantages* of *distributed computing*. [4]
- |   |   |
|---|---|
| 0 | 9 |
|---|---|
- A global market research company uses *File Transfer Protocol* (FTP). Describe in detail what is meant by FTP, state a use and give an *advantage* to the company of using FTP. [4]
- |   |   |
|---|---|
| 1 | 9 |
|---|---|
- According to a survey, the average 21 year old has:
- spent 5000 hours videogaming;
  - sent 250,000 email messages;
  - spent 10,000 hours on a mobile phone.
- Discuss using appropriate examples the benefits and concerns these activities cause for modern society. [18]

IT3 June 2015

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| 0 | 3 |
|---|---|
- An organisation uses *File Transfer Protocol (FTP)*. Give **two** specific uses an organisation can make of FTP and give **two** advantages for the organisation of using FTP. [4]
- 
- |   |   |
|---|---|
| 1 | 2 |
|---|---|
- '*The Internet is worldwide and for everyone. No-one owns it or controls the Internet.*' Discuss this statement and illustrate your arguments with different examples. [8]

IT3 June 2016

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|---|---|
| 0 | 5 |
|---|---|
- Many large IT projects now make use of distributed computing. Define what is meant by *distributed computing* and describe **two** applications which make use of it. [5]
- 
- |   |   |
|---|---|
| 0 | 6 |
|---|---|
- Describe **two advantages** and **two disadvantages** that the use of distributed computing brings to large IT projects. [4]
- 
- |   |   |
|---|---|
| 0 | 7 |
|---|---|
- A retail company already has a network and a basic website. Other than *order tracking* or *email confirmation*, describe in detail, the **four** main requirements that they need to have in place to allow them to offer on-line shopping. [4]
- 
- |   |   |
|---|---|
| 0 | 8 |
|---|---|
- Many devices are used to give mobile access to the internet. Describe **two advantages** and **two disadvantages** to an employee of having mobile access to the Internet. [4]
- 
- |   |   |
|---|---|
| 0 | 9 |
|---|---|
- Individuals can now apply to have links to content about them removed from search engines. Discuss why individuals might want these links removed and any concerns individuals or society might have about this issue. [6]



## Past Paper Questions

# IT3 – Topic 3 – Human Computer Interfaces

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*



IT3 Specimen

1. The Human Computer Interface is an important part of an ICT system. Name **four** factors which must be taken into account when designing a good user interface. Explain why **each** factor is important. [8]

IT3 January 2010

1. The Human Computer Interface (HCI) is an important part of an ICT system.
  - (a) Examine the different needs of an expert user and a novice user and describe how they can be met when designing the HCI. [5]
  - (b) Discuss using examples, the features of a HCI that would be suitable for the disabled user. [4]

IT3 June 2010

1. The Human Computer Interface (HCI) is an important part of an ICT system. Describe **four** factors which should be taken into account when designing a good HCI. Explain why **each** factor is important. [4×2]

IT3 January 2011

**Question A.**

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As computer systems have become more complex the interface has become increasingly important. Other than *differentiation between user expertise*, describe **four** factors that should be taken into account when designing a good human computer interface and for **each** factor describe why it is important. [8]

IT3 June 2011

**Question A.** The Human Computer Interface (HCI) on a computer can be adapted for different tasks.

0	1
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Describe in detail, **three** factors, *other than layout appropriate to task*, using different examples that should be taken into account when designing a good HCI. [6]

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Describe the factors that should be taken into account when designing an appropriate layout of an HCI that would be used by a young child learning how to read. [4]

IT3 January 2012

0	1
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A good Human Computer Interface (**HCI**) is vital for an information system to work well. Other than *layout appropriate to task*, describe **four** factors which should be taken into account when designing a good HCI. Explain why **each** factor is important. [4 x 2]

IT3 June 2012

0	1
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 Discuss the different needs of a novice and an expert computer user, and describe how they could be met when designing a suitable *Human Computer Interface* (HCI). [5]

0	2
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 Discuss the needs of a disabled computer user and describe how they can be met when designing a suitable *Human Computer Interface* (HCI). [4]

IT3 January 2013

0	1
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 A Human Computer Interface (HCI) allows a computer to be used. Other than *disabled access* and the *expertise of the user*, state **three** factors which should be taken into account when designing a good HCI. Illustrate **each** factor with a suitable example. [3×2]

0	2
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 Describe, using examples, the features of a HCI that would help a disabled person use a computer. [4]

IT3 June 2013

0	1
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 Describe **four** factors that should be taken into account when designing a Human Computer Interface (HCI) that could be used by a young child learning to read. [4]

0	2
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 A good HCI is important. Discuss the different requirements of *an expert user* and *an adult novice user* and describe how a well designed HCI can satisfy these needs. [6]

IT3 January 2014

0	1
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 A poorly designed *Human Computer Interface* (HCI) can affect the performance and efficiency of a computer system. Other than '*differentiation between user expertise*', discuss in detail **four** factors that should be taken into account when designing a good HCI. [4×2]

IT3 June 2014

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 A novice user and an expert user have different needs when using a computer. Discuss these differing needs and then describe how different *Human Computer Interfaces* (HCI) can address these needs. [5]

0	2
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 Describe the factors that should be taken into account when designing an appropriate HCI that would be used by a young child learning how to spell. [4]

IT3 June 2015

0	1
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 Other than *layout appropriate to task* and *use by disabled people*, describe, **in detail**, **three other** factors that should be taken into account when designing a good user interface. [3×2]

0	2
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 Describe **five** examples of how a suitable *Human Computer Interface* (HCI) can meet the needs of disabled users. *In your answer you must state the disability or need.* [5]

IT3 June 2016

0	1
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An expert user and a novice user have differing needs when using ICT. Explain what these differing needs are and then describe how *Human Computer Interfaces* (HCI) can be designed to satisfy these needs. [5]

0	2
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Other than speech recognition or voice output, describe using examples, the features of a Human Computer Interface that would help a disabled person use a computer. [4]





## **Past Paper Questions**

# **IT3 – Topic 4 – Working with ICT**

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*

IT3 Specimen

5. The IT section in a college has decided to introduce a code of conduct for all its IT users. Discuss possible problems which might have prompted this decision and suggest suitable guidelines which could be included in the code of conduct, to avoid such problems in the future. [6]
9. An organisation has introduced new ICT systems. These systems have had a great impact upon employment.
- (a) Discuss two potential health issues which might occur with the introduction of these new ICT systems and describe measures the organisation can take to prevent them. [4]
- (b) Describe the impact these new ICT systems could have upon job and work patterns. Illustrate your answer with distinctly different examples in each case. [6]

IT3 January 2010

6. *'The increase in bandwidth has resulted in an increasing number of people being able to work from home using computer networks, often referred to as teleworking.'*  
Discuss, with the aid of suitable examples, the advantages and disadvantages to employees and organisations of such methods of working. [8]
7. Some employees can misuse an organisation's ICT facilities.
- (a) Many organisations have a code of conduct to deter their employees from misusing their ICT facilities. Describe what a code of conduct is and describe **three** things it should contain. [5]
- (b) Describe **three** ways in which an employee can misuse the organisation's ICT facilities and give **two** possible penalties for misuse. [5]

IT3 June 2010

7. ICT systems have an effect in the workplace.
- (a) Describe **three** possible *health issues* which could have occurred with the introduction of ICT systems and the actions that an organisation should take to prevent them. [3×2]
- (b) Describe in detail the impact ICT systems could have upon *jobs* and *work patterns*. Illustrate your answers with **three** distinctly different examples. [6]

IT3 January 2011

**Question F.** A hospital has a 'code of conduct' for all of its employees using ICT systems.

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 Describe what is meant by a 'code of conduct' and describe **four** guidelines it should contain. [6]

1	3
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 Explain how the hospital management can enforce the code of conduct. [2]

**Question G.**

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 The improvement in computer power has led to more people being able to work from home using computer networks, often called teleworking.  
Discuss, with the aid of suitable examples, the advantages and disadvantages to employees and companies of teleworking. [8]

IT3 June 2011

NO QUESTION

IT3 January 2012

NO QUESTION

IT3 June 2012

0	6
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 Organisations are often concerned that some of their employees misuse their facilities. Describe **three** distinct ways that an employee can misuse ICT facilities. [3]

0	7
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 Most organisations now have a code of conduct to discourage their employees from misusing the ICT facilities.  
Describe **four** distinct guidelines a code of conduct should contain. [4]

IT3 January 2013

1	2
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 A local council has a *code of conduct* for all of its employees who use ICT systems. Define what is meant by a code of conduct and describe **four** guidelines it should contain. [6]

IT3 June 2013

0	8
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 Changes in modern technology have led to an increase in teleworking. Discuss the advantages and disadvantages to **both** employees and employers of teleworking. [8]

IT3 January 2014

NO QUESTION

IT3 June 2014

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Describe **three different** examples which illustrate the difference between legal and moral issues with respect to *codes of conduct*. [6]

1	4
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Improvements in communication systems have made it possible for more and more people to work from home using computer networks, often called *teleworking*. Discuss the *advantages* and *disadvantages* to employees and companies of *teleworking*. [8]

IT3 June 2015

0	7
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Discuss the *advantages* and *disadvantages* videoconferencing brings to an organisation or its employees. [5]

0	9
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A financial institution has a 'code of conduct' for all its employees who use its ICT systems. Describe **five** guidelines it should contain, *other than the consequences of breaking the code*. [5]

IT3 June 2016

1	0
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Employees are required to abide by a code of conduct with regard to the use of a company's ICT facilities. Other than *penalties*, give **three** examples of what should be contained in a code of conduct and illustrate each of these with a suitable different problem they are designed to overcome. [3×2]



## **Past Paper Questions**

# **IT3 – Topic 5 – Security Policies**

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*

IT3 Specimen

10. Most organisations now have ICT security policies.
- (a) Discuss in detail the potential threats to data and the possible consequences of accidental or deliberate destruction of data. Illustrate your answer with distinctly different examples in **each** case. [8]
  - (b) Discuss **three** methods which could be used to prevent the deliberate destruction or misuse of data. [9]

IT3 January 2010

3. A local doctor's practice uses a network to manage patient records, appointments and all its financial functions. The Practice Manager is worried about the confidentiality of the patient records.
- (a) Explain why the practice should have a security policy and give **two** examples of what this should contain, other than user accounts and logs. [4]
  - (b) Describe the use of user accounts and logs as a way of ensuring the confidentiality of patient records. [3]
8. Describe the factors an organisation needs to consider when producing a risk analysis. [4]

IT3 June 2010

6. A Health Authority is very dependent on their ICT system for administration. The Health Authority is undertaking a *risk analysis*.
- (a) Describe in detail **two** of the factors the Health Authority should take into account when deciding how to develop, control and minimise the *risk* to data. [2×2]
  - (b) Identify a problem that could arise if steps are not taken to minimise the risk, discuss its possible impact and describe in detail a suitable strategy to overcome it. [4]
9. Most organisations now have ICT security policies.
- (a) Discuss in detail the potential threats to data and the possible consequences of accidental or deliberate destruction of data. Illustrate your answer with distinctly different examples in **each** case. [9]
  - (b) Discuss **four** methods which could be used to prevent the deliberate destruction or misuse of data. [4×2]

IT3 January 2011

**Question H.**

1	5
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A large travel agency has concerns about losing data. They are reviewing their disaster recovery procedures.  
Explain with reasons **four** factors which should be included in a disaster recovery plan. [8]



IT3 June 2011

**Question C.** A large company has branches all over the UK and uses its ICT systems to manage customer records and all its financial dealings. The company's Data Officer has written a security policy to protect the data held by the company.

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 Describe the use of user accounts and logs as a way of ensuring the confidentiality of customer records. [2]

0	6
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 Explain **two** other factors which the company should take into account when designing its security policy. [4]

**Question G.**

1	3
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 Describe in detail **two** of the factors an organisation needs to consider when producing a risk analysis. [4]

IT3 January 2012

0	8
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 Describe **three** factors an organisation needs to consider when producing a *risk analysis*. [6]

0	9
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 A local council uses a network to manage their client records, appointments and all their financial functions. The council's Information Officer is worried about the confidentiality of the records.  
Explain why the council should have a security policy. Other than *user accounts* and *logs*, give **three** examples of what it should contain. [5]

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 Describe the use of *user accounts* and *logs* as a way of keeping records secure. [3]

IT3 June 2012

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 A Bank is very dependent on its ICT system for its administration. The Bank is undertaking a *risk analysis*.  
Describe in detail **two** of the factors the bank should take into account when deciding how much to spend to control and minimise the risk to data. 2 x [2]

1	9
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 With the increase in the use of computing systems most organisations have adopted ICT security policies.  
Discuss in detail **three different** types of potential threats to data. For each type of threat, describe the possible consequences of the destruction of data. You need to use **distinctly** different examples to illustrate your threats. [9]

2	0
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 Discuss **four** possible operational procedures for preventing misuse of data. Use distinct examples to illustrate your procedures. [8]

IT3 January 2013

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 A large *Research Agency* uses ICT systems to store customer records and all its financial functions. Explain why the agency should have a security policy and give **two** examples of what it should contain, other than *user accounts* and *logs*. [4]
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 Describe the use of *user accounts* and *logs* as a way of maintaining the security of customer records. [3]
- |   |   |
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|---|---|

 Other than how well the company is equipped to deal with the risk, describe in detail **three** of the factors an organisation needs to consider when producing a risk analysis. [6]
- |   |   |
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 A bank is reviewing its disaster recovery programme. Other than *risks*, explain with reasons **three** factors, which should be included in a disaster recovery programme. [6]

IT3 June 2013

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 A national bank wants to ensure that its financial systems are secure against attack. Other than *code of conduct*, describe **four** factors that should be included in the bank's security policy. [8]

IT3 January 2014

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 Due in part to potential threats to data, most organisations have now created *ICT security policies*. Discuss in detail **four distinctly different** types of potential threats to data. For **each** type of threat, describe a possible *distinctly different* consequence of the destruction of the data. [12]
- |   |   |
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 Describe **three operational procedures** an organisation could put in place to prevent misuse of data. Use *different* examples to illustrate each procedure. [6]

IT3 June 2014

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 The Data Officer of a large company has written a security policy for that company. Explain why the company should have a security policy. Other than *user accounts* and *logs*, give **three** examples of what it should contain. [5]
- |   |   |
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| 0 | 6 |
|---|---|

 Describe the use of *user accounts* and *logs* as a way of keeping confidential data secure. [3]
- |   |   |
|---|---|
| 1 | 1 |
|---|---|

 A finance company is carrying out a risk analysis. Describe in detail **three** of the factors the company should take into account when deciding how much to spend to control and minimise the risk to data. [3x2]



IT3 June 2015

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*Other than establishing a code of conduct*, discuss **five** possible *operational procedures* which could be introduced to prevent the misuse of data. Use distinct examples to illustrate these procedures. [5×2]

1	3
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Companies and their customers are increasingly dependent on electronic information. The security of electronic data is very important to every company and their customers.

Describe **three different** types of threat to a company's data and illustrate **each** type of threat with a **different detailed example**. For **each** of the different threats, describe a *distinctly different* consequence for a company or its customers, should the security of the data be compromised or the data destroyed. [3×3]

IT3 June 2016

1	1
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A multinational bank is carrying out a risk analysis. *Other than the risks themselves*, describe in detail **three** of the factors the company should take into account when deciding how to minimise the risk to data. [3×2]

1	5
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Organisations are aware that data can be lost due to *accidental misuse*. Explain **two different** methods that the organisation could use to prevent it. [2]

1	6
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Organisations are very concerned about the safety of their data. Describe in detail **four** methods that could be used to prevent the loss of data due to *deliberate crimes* or *misuse*. [4×2]



## **Past Paper Questions**

# **IT3 – Topic 6 – Database Systems**

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*

## IT3 Specimen

6. Most modern computer systems now use relational databases with Database Management Systems (DBMS).
- (a) Compare and contrast the problems that arise with data redundancy, data integrity and data consistency in flat-file databases compared to relational databases. [6]
  - (b) Explain what is meant by a Database Management System and contrast their advantages and disadvantages. [6]
11. (a) A hospital uses a relational database management system for storing patient records. Staff and patients are allocated to wards.
- (i) Explain what is meant by a relational database. [2]
  - (ii) One table in this database could be  
WARD (WardId, NumofBeds, *StaffId* )  
with WardId being the primary key and *StaffId* the foreign key.  
Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [5]
  - (iii) Explain why relational databases are more secure than a flat file approach for storing patient records. [2]
- (b) Hospitals use distributed medical databases. Describe the problems that could arise when using such distributed medical databases. [4]
- (c) The use of video conferencing has now become important in the Health Service. With reference to appropriate examples, discuss **three** uses of video conferencing in the Health Service. [4]

## IT3 January 2010

11. A mail order company uses a relational database management system for storing details of orders. Stock and customers are allocated to orders.
- (a) Explain what is meant by a relational database. [2]
  - (b) One table in this database could be  
  
STOCK [StockID, Stock name, Price, Size, *ManufacturerID*]  
  
With StockID being the primary key and *ManufacturerID* the foreign key.  
  
Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [5]
  - (c) The company uses a data warehouse to hold details about customers and their transactions. Explain how the data warehouse and data mining could be useful to a mail order company. [4]
  - (d) Describe the advantages of a relational database approach over a flat-file approach in relation to data redundancy, data integrity and data consistency. [6]

IT3 June 2010

10. (a) A hospital uses a relational database management system for storing patient records. Staff and patients are allocated to wards.
- (i) Explain what is meant by the term *data normalisation*. [2]
- (ii) One table in this database could be STAFF (Staff Id, Name, Contact no, Ward no)  
 With Staff Id being the primary key and Ward no the foreign key.  
 Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [6]
- (iii) Explain why relational databases are more secure than a flat file approach for storing patient records. [2]
- (b) Most Health authorities now use *distributed databases*. Explain what is meant by the term distributed database and discuss their advantages and disadvantages. [7]

IT3 January 2011

**Question J.** Relational databases are becoming increasingly important to all organisations that handle data.

Explain what is meant by **each** of the following terms:

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| 2 | 0 |
| 2 | 1 |
| 2 | 2 |
| 2 | 3 |
- data consistency,*
- data redundancy,*
- data integrity,*
- data independence.* [4]
- A village sports club uses a database management system to operate a membership and fixture system. *Members* normally register for more than one *sport*. *Fixtures* against other villages are arranged in a wide variety of sports involving a large number of teams.

One table in this database could be:

SPORT[Sportid, Sport\_name, Home\_venue]

with Sportid being the primary key.

Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign keys. [8]

A commercial company uses a *data warehouse* to hold details about customers and their purchases.

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| 2 | 4 |
| 2 | 5 |
- Describe what a *data warehouse* is and explain the advantages it gives this company. [5]
- Explain what is meant by *data mining* and give an example of how the company might use it. [3]

IT3 June 2011

**Question J.** A public library in a large town uses a relational database for their book lending system. When a *borrower* takes out a *book*, the *loan* is recorded.

Relational databases hold the data in a number of tables. In this library system there is a table for Borrower, which is partially shown below:

BORROWER [BorrowerID, Surname, Firstname, ....]

where BorrowerID is the primary key.

1	7
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 Explain what is meant by a *primary key* and a *foreign key*. [2]

1	8
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 Give **two** other suitable tables, you would expect to see in this library loan system, identifying any primary or foreign keys. [7]

1	9
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 Give **three** reasons why relational databases are more secure than the *flat file approach*. [3]

The Council's library service uses a data warehouse to hold details about all library loans throughout its area. Holding this large central store of data allows the library staff to use data mining.

2	0
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 Describe what is meant by a *data warehouse* and explain the advantages it might give the library service. [3]

2	1
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 Explain what is meant by *data mining* and give an example of how the library staff might use it. [3]

IT3 January 2012

1	7
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 Many companies would now struggle to operate effectively without database technology.  
Explain what is meant by a relational database. [2]

1	8
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 Using appropriate examples, describe the advantages of a relational database approach over a flat file approach. [6]

1	9
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 Describe what a *data warehouse* is and give an example of how a company might use it. [3]

2	0
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 Explain what is meant by *data mining* and give a detailed example of how a company might use it. [3]

2	1
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 Discuss in general terms, the advantages and disadvantages *distributed databases* give to a company. [3]



IT3 June 2012

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|---|---|---|
| 1 | 5 | Explain what is meant by a relational database. [2] |
|---|---|---|
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|---|---|---|
| 1 | 6 | <p>A DVD Rental Company uses a relational database management system for organising its lending. For simplicity, a person may only borrow one DVD at a time. Part of one table in the DVD Rental Company database could be:</p> <p>BORROWER [<u>BorrowerID</u>, FirstName, Surname, Borrower Type, Address1, .....]</p> <p>with <u>BorrowerID</u> being the primary key.</p> <p>Give <b>two</b> other suitable tables you could expect to see in this database, identifying any primary and foreign keys. [7]</p> |
|---|---|---|
- |   |   |  |
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| 1 | 7 | Relational databases are normalised to work effectively. Explain what is meant by the term <i>data normalisation</i> . [2] |
|---|---|--|
- |   |   |  |
|---|---|--|
| 1 | 8 | Some companies now use <i>distributed databases</i> . Explain what is meant by the term <i>distributed databases</i> and explain their advantages and disadvantages. [6] |
|---|---|--|

IT3 January 2013

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| 1 | 7 | Data in a relational database is normalised. Explain what is meant by a <i>relational database</i> and <i>data normalisation</i> . [4] |
|---|---|--|
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|---|---|--|
| 1 | 8 | Describe the terms <i>data redundancy</i> , <i>data integrity</i> and <i>data consistency</i> in relation to a relational database approach over a flat-file approach. [3×2] |
|---|---|--|
- |   |   |   |
|---|---|---|
| 1 | 9 | Give <b>two</b> reasons why relational databases are more secure than the flat-file approach. [2] |
|---|---|---|
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|---|---|---|
| 2 | 0 | Modern technology also makes use of <i>distributed databases</i> . Define what is meant by a distributed database. Describe <b>two</b> <i>security issues</i> that apply to distributed databases and suggest <b>a different</b> method for overcoming <b>each</b> issue. [5] |
|---|---|---|

IT3 June 2013

- 1 5 A Hospital uses a relational database for storing patient records. Explain what is meant by a relational database. [2]
- 1 6 *Data consistency, Data redundancy, Data integrity and Data independence* are all terms associated with relational databases. Explain what each of these **four** terms means. [4]
- 1 7 Consultants and patients are allocated to wards but each patient has only one consultant and each ward has their own consultant. One table in this database could be:
- WARD(Wardid, WardName, NumOfBeds)
- With Wardid being the primary key.
- Give **two** other suitable tables you could expect to see in this database, identifying any primary or foreign key. [6]
- 1 8 Describe what a *data warehouse* is and give an example of how a company might use it. [3]
- 1 9 Explain what is meant by data mining and give a detailed example of how a company might use it. [3]

IT3 January 2014

- 1 3 Relational databases are normalised to work effectively. Explain what is meant by the term *data normalisation*. [2]
- 1 4 Give **three** reasons why *relational databases* are more secure than a *flat file approach*. [3]
- 1 5 *Distributed databases* are widely used. Explain what is meant by the term *distributed databases* and explain their *advantages* and *disadvantages*. [7]
- 1 6 Explain what is meant by a *data warehouse* and describe the advantages it might give a retail company. [3]
- 1 7 Explain what is meant by *data mining* and describe an example of how a retail company might use it. [3]

IT3 June 2014

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- Explain what is meant by a *relational database*. [2]
- |   |   |
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| 1 | 6 |
|---|---|
- A car hire company uses a relational database management system for organising its rentals. For simplicity, a person may only hire one car at a time. Part of one table in the car hire database could be:
- CAR [CarID, Make, Model, Colour, Year of registration, Hire rate, .....]
- with CarID being the primary key.
- Give **two** other suitable tables you could expect to see in this database, identifying any primary and foreign keys and at least **two** other fields in **each** table. [7]
- |   |   |
|---|---|
| 1 | 7 |
|---|---|
- Describe how the car hire database structure could be improved to allow a person to hire more than one car at a time. [1]
- |   |   |
|---|---|
| 1 | 8 |
|---|---|
- Using appropriate examples, describe the *advantages* of a *relational database* approach over a *flat file* approach. [8]

IT3 June 2015

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| 1 | 5 |
|---|---|
- Organisations now store vast amounts of data in normalised form in relational databases. This data is used as a data warehouse and is mined to aid decision making. Explain what is meant by:
- Data normalisation
  - Relational database
  - Data warehouse
  - Data mining.
- [6]
- |   |   |
|---|---|
| 1 | 6 |
|---|---|
- A relational database approach has many advantages, including increased security. Describe the positive security implications of a relational database over other types of databases. [2]
- |   |   |
|---|---|
| 1 | 7 |
|---|---|
- Give **one** advantage of using a data warehouse and **one** detailed advantage of data mining to an organisation. [3]
- |   |   |
|---|---|
| 1 | 8 |
|---|---|
- Distributed databases are used by some hotel chains. Describe **two** benefits to a hotel chain of using a distributed database and describe **two security issues** associated with distributed databases for the hotel chain. Suggest a *different* method the hotel chain could use for overcoming **each** of these issues. [6]



IT3 June 2016

1	7
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A relational database is made up of entities, attributes and relationships. Explain what is the meaning of each of the following terms: *entity*, *attribute* and *relationship*. [3]

1	8
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A hospital spinal unit stores patient records using a relational database. A patient is allocated to a ward and has a physiotherapist allocated to them as well. One table in this database could be:

WARD (Wardid, WardName, Capacity, FreeBeds)

With Wardid being the primary key.

Give **two** other suitable tables you could expect to see in this database, identifying any *primary* or *foreign keys*. [7]

1	9
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Describe in detail, **four** factors which make a relational database more efficient when compared with a flat file database. [8]



## **Past Paper Questions**

# **IT3 – Topic 7 – Management of Change**

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*

IT3 Specimen

NO QUESTION

IT3 January 2010

NO QUESTION

IT3 June 2010

NO QUESTION

IT3 January 2011

NO QUESTION

IT3 June 2011

**Question F.** The introduction of a new ICT system can cause a number of changes in the workplace.

1	1
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Describe **three** of the changes which are likely to be a cause of stress to the staff and the worries each might bring. [6]

1	2
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Describe, using examples, **two** things that management could do to lessen any worries that the staff might have about the introduction of the new system. [4]

IT3 January 2012

1	4
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Following a company takeover, the introduction of new ICT systems has a big impact upon the workforce and working patterns. These changes have to be carefully managed. Describe in detail **four** different *consequences of change* caused by the introduction of new ICT systems. [4]

IT3 June 2012

NO QUESTION

IT3 January 2013

NO QUESTION

IT3 June 2013

NO QUESTION

IT3 January 2014

0	7
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Describe in detail **three fears** the workforce may have when a new ICT system is introduced into their workplace. [3×2]

0	8
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Describe, using examples, **two** things that management could do to lessen any fears that the staff might have about the introduction of a new ICT system. [4]

IT3 June 2014

NO QUESTION

IT3 June 2015

NO QUESTION

IT3 June 2016

1	4
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Following a company reorganisation, the introduction of new IT systems has a big impact upon the workforce and working patterns. Describe in detail **four fears** the workforce might have when a new IT system is introduced into their workplace. [8]



## Past Paper Questions

# IT3 – Topic 8 – Management Information Systems

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*

## IT3 Specimen

7. Compare and contrast the features/factors which make the difference between a good Management Information System (MIS) and a poor MIS. Use examples wherever possible to illustrate your answer. [13]

## IT3 January 2010

10. (a) An effective Management Information System (MIS) has become very important to organisations. Describe what is meant by a MIS. Compare and contrast the factors which make the difference between an effective MIS and a poor MIS, using appropriate examples. [9]

## IT3 June 2010

5. (a) Describe what is meant by a management information system (MIS). Include in your answer **one** example of how an MIS can be used. [5]
- (b) Describe the factors which make a good or a poor MIS using examples to illustrate your answer. [8]

## IT3 January 2011

**Question I.** Many schools are now heavily dependent on their Management Information System (MIS).

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|---|---|
| 1 | 6 |
|---|---|
- Define what is meant by a MIS and describe, using an appropriate example, a task that could best be accomplished using the MIS. [4]
- |   |   |
|---|---|
| 1 | 7 |
|---|---|
- Describe in detail **four** features of a good MIS. [8]
- |   |   |
|---|---|
| 1 | 8 |
|---|---|
- Describe in detail **four** factors which can lead to a poor MIS. [8]

## IT3 June 2011

**Question I.**

- |   |   |
|---|---|
| 1 | 6 |
|---|---|
- More and more organisations are now using *Management Information Systems (MIS)*. Describe using appropriate examples **three** factors that can lead to an effective MIS. [6]

## IT3 January 2012

- |   |   |
|---|---|
| 0 | 6 |
|---|---|
- Most organisations now use Management Information Systems (MIS). Describe what is meant by an MIS, and use a suitable example to illustrate how it can be used. [4]
- |   |   |
|---|---|
| 0 | 7 |
|---|---|
- Describe the factors which make a Management Information System (MIS) either good or poor. [7]

IT3 June 2012

1	4
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Many organisations now depend on their Management Information System (MIS) for the success of their businesses. Discuss using appropriate examples **four** of the features of an effective MIS system. [8]

IT3 January 2013

1	1
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More and more organisations are becoming very dependent on their Management Information Systems (MIS). Describe in detail **four** factors that can lead to an *effective* MIS. [8]

IT3 June 2013

1	2
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Most organisations could not operate without a good Management Information System (MIS). Define what is meant by an MIS and describe the factors which make an MIS good or poor. [10]

IT3 January 2014

0	9
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Describe, in detail, **four** of the factors which make an effective *Management Information System* (MIS). [8]

IT3 June 2014

1	3
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Describe the factors which make a *Management Information System* (MIS) either good or poor. [6]

IT3 June 2015

1	4
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Organisations find that having an ineffective *Management Information System* (MIS) can be counter-productive. Describe, in detail, **four** factors that can help prevent a MIS being non-effective. [4×2]

IT3 June 2016

1	2
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A poor *Management Information System* (MIS) can be disastrous for an organisation. Describe **four** of the factors which can make a MIS poor and **four** factors which can make a MIS good. [8]



## Past Paper Questions

# IT3 – Topic 9 – System Development Life Cycle

Mark Schemes available at *[jacktilson.net](http://jacktilson.net)*



IT3 Specimen

8. Despite rigorous testing, it is sometimes necessary for software developers to undertake maintenance on systems. Explain why this might happen and outline some of the different types of maintenance that might be undertaken. Illustrate your answer with suitable examples. [8]

IT3 January 2010

10.

- (b) Despite rigorous testing, it is sometimes necessary for software developers to maintain the systems they have produced. Explain why this situation might arise and describe, using suitable examples, some of the different types of maintenance that might have to be undertaken. [8]

IT3 June 2010

4. Having investigated and analysed a system, a systems analyst will then have to consider which changeover strategy he is going to suggest for the implementation.
- (a) Describe and evaluate **two alternative** changeover strategies the analyst could use. [6]
- (b) Over time, users may become dissatisfied with their ICT system. Discuss why this might be the case. [4]

IT3 January 2011

**Question E.**

The first step in producing a new computer system is to investigate the existing system and produce a feasibility report.

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Describe **two** different ways a systems analyst can gather information about the existing system. [4]

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Describe the purpose of the feasibility report and what should be included in the report. [4]

IT3 June 2011

**Question H.** A system analyst has just designed a new ICT system for an organisation.

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Discuss **two** of the different changeover strategies that the organisation could use for conversion to the new system. [6]

1	5
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After the new system is working, it will have to be maintained. Describe **two** different methods of system maintenance, illustrating each method with an appropriate distinct example. [6]

IT3 January 2012

- |   |   |
|---|---|
| 1 | 3 |
|---|---|
- During the *design* phase of the *system development life cycle* many issues need to be considered. Other than *design of hardware*, describe in detail **four** features or processes which should be considered when designing a new computer system. [8]

IT3 June 2012

- |   |   |
|---|---|
| 1 | 3 |
|---|---|
- A systems analyst is called in to give advice after a new ICT system is implemented. Describe, using examples, **four** *maintenance issues* that could have arisen. [8]

IT3 January 2013

- |   |   |
|---|---|
| 1 | 4 |
|---|---|
- When developing a new computer system, a systems analyst will have to investigate to produce the feasibility report. Describe what will be investigated in order to produce this report. [5]
- |   |   |
|---|---|
| 1 | 5 |
|---|---|
- Once a new computer system has been designed, it has to be implemented. Discuss **two** different changeover strategies that an organisation could use for conversion to the new system. [6]
- |   |   |
|---|---|
| 1 | 6 |
|---|---|
- Once the new computer system is up and running, it has to be maintained. Describe **two** different system maintenance methods and illustrate **each** method with *appropriate* examples. [6]

IT3 June 2013

- |   |   |
|---|---|
| 1 | 3 |
|---|---|
- A systems analyst is investigating a company with regard to creating a new ICT system. Describe **three** methods she would use to gather information about the existing system. [9]

IT3 January 2014

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|---|---|
| 0 | 4 |
|---|---|
- A system analyst has a choice of *direct changeover* or *parallel running* when updating a computer system. Describe these **two** *different* potential changeover strategies and describe the *advantages* and *disadvantages* of each of the *different* strategies. [6]

IT3 June 2014

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| 1 | 2 |
|---|---|
- A company has installed a new ICT system which will have to be maintained. Describe **two** *different* methods of system maintenance, illustrating each method with an appropriate *distinct* example. [2x3]

IT3 June 2015

0	8
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A system analyst has been employed by a council to produce a new computer based system to replace the system currently running their central lending library. *Other than observation*, describe **two** methods the analyst could use to investigate their current system. [2×3]

1	0
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A doctors' practice has installed a new computer system to help run the practice. Once this system is up and running, it has to be maintained. Describe **three** different methods of *system maintenance* and illustrate **each** method with appropriate examples. [3×3]

IT3 June 2016

1	3
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During the *design* period of the *System Development Life Cycle* a system analyst has to look at a number of aspects. Other than *design of input methods*, describe in detail **four** aspects which should be considered when designing a new computer system. [8]