St Francis Xavier College

INFORMATION TECHNOLOGY

SCHOOL ASSESSED COURSEWORK

Unit 1 Outcome 2

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**To be completed under examination conditions**

**Time allowed:**

* Reading Time: 10 minutes
* Time on Task: 65 minutes

**Description of the Task**:

**This task is designed to test your knowledge and understanding of:**

* ways in which people, procedures, equipment and data combine to form networked information systems
* capabilities of Wide Area Networks (WANs) and Local Area Networks (LANs)
* advantages and disadvantages for individuals and organisations of using networks in a global environment
* functions and characteristics of key hardware and software components of networks required for communicating and storing data and information
* characteristics of wired and wireless network protocols
* strengths and limitations of wireless and wired communications technology, measured in terms of data transfer rate, cost and reliability
* types, capabilities and limitations of mobile devices connected to networks
* roles and responsibilities of professional people who develop and support networks, including procedures to control the operation of networks
* security threats to data and information communicated and stored within networks.

*Key skills*

These skills include the ability to:

* identify types of networks and state reasons for their use
* evaluate the capabilities of different networks and communications technology
* explain the limitations and strengths of networks to support the communication and storage of data and information using mobile devices
* explain ways in which network professionals develop and maintain networks
* select and recommend networks suitable for specific uses
* explain how actions, devices and events can threaten the security of data and information communicated and stored within networks.

**Students are permitted to bring in**: pens, pencils and erasers

 *Information Technology*

*Unit 1: IT in Action*

**Outcome 2: Networks**

On completion of this unit the student should be able to recommend a networked information system for a specific use and explain possible security threats to this networked information system.

**Smartmoves Tutoring**

Smartmoves Tutoring is a small business located in the eastern suburbs of Melbourne. The business offers after-school and weekend tutoring for primary and secondary school students.

Ben Levi is the owner-operator of the business. Ben employs 10 part-time tutors who work on various days. Clients use stand-alone computers to complete learning tasks with their tutors.

Smartmoves Tutoring is a successful business and the number of clients is growing due to the excellent reputation of the company in the local community. Ben has decided to expand his business and his staff due to demand. Smartmoves Tutoring will move to larger premises in a new vacant shop space at a local shopping centre. The shop is currently empty and will need to be set up with a reception desk, an office area for Ben, and four separate tutoring areas.

It must include a computer network that satisfies the following requirements:

* a workstation for Ben in his office area
* a workstation for the receptionist to record client details and create advertising material; the receptionist will also have the job of coordinating staff rosters
* a workstation at each of the tutoring areas; tutors and clients need to be able to work at any of the tutoring workstations
* a network that will store all client and staff details, rosters, salaries, advertising, and client work files that are created during their tutoring sessions
* suitable printing facilities for staff and clients
* Internet access
* Email for all staff.

Ben also wants to employ an IT professional to assist with the development and support of the network.

**Question 1: 3 marks**

Describe three ways how a network will improve the operations of Smartmoves Tutoring.

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**Question 2: 6 marks**

Draw a simplified network diagram that you would recommend for Smartmoves Tutoring.

Ben’s Office

Tutoring Area 3

Tutoring Area 1

Tutoring Area 2

Tutoring Area 1

Storage / Server Room

Tutoring Area 4

Tutors’ lounge

Receptionist Desk

**Question 3: 1+2 x 2 = 6 marks**

Apart from a work station, identify two (2) **networking devices** that you recommend for Smartmoves Tutoring’s network. Describe the purpose of each of the two devices.

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**Question 4:** **1+2 x 2 = 6 marks**

Identify two software programs that will be required for the Smartmoves Tutoring network. Describe the purpose of each of the two programs.

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**Question 5: 1 + 3 = 4 marks**

Do you recommend that the Smartmoves Tutoring network be wireless or wired?

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Justify your choice above by briefly describing how your network will perform in terms of data transfer rate, cost and reliability *compared with the alternative choice*.

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| Data Transfer Rate |
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| Cost |
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| Reliability |
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**Question 6: 6 marks**

Describe three potential threats to the security of the information stored and communicated via the Smartmoves network.

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**Question 7: 2 marks**

For one of your answers to Question 6, how can Smartmoves Tutoring protect itself against this threat?

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**Question 8: 1 + 3 = 4 marks**

What could be the description of the IT support person that Ben intends to hire? Describe the role and three responsibilities of such a person for the Smartmoves network.

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**Question 9: 3 marks**

Ben would like to connect his smart phone to the Smartmoves Tutoring network. Describe three ways in which this would be beneficial for him with the management of his company.

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**Marking Scheme**

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|  | **Total Marks** | **Your Mark** |
| Question 1 | 3 |  |
| Question 2 | 6 |  |
| Question 3 | 6 |  |
| Question 4 | 6 |  |
| Question 5 | 4 |  |
| Question 6 | 6 |  |
| Question 7 | 2 |  |
| Question 8 | 4 |  |
| Question 9 | 3 |  |
| **Total** | **40** |  |