SUNBURY COLLEGE

INFORMATION TECHNOLOGY

SCHOOL ASSESSED COURSEWORK

Unit 1 Outcome 2

**Duration:**

Reading Time: 10 minutes

Time on Task: 60 minutes

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

**Structure of Examination**

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| **Section** | **Number of Questions** | **Mark Allocation** |
| A, MULTIPLE CHOICE | 20 | 20 |
| B, Short Answers | 2 | 5 |
| C, Case Study | 4 | 15 |

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| **A+** | **A** | **B+** | **B** | **C+** | **C** | **D+** | **D** | **E+** | **E** | **Not Satisfactory** |
| **90 - 100** | **80 –89** | **75 - 79** | **70 - 74** | **65 - 69** | **60 – 64** | **55 - 59** | **50 -54** | **45 - 49** | **40 -44** | **Below 40** |

**To be completed under examination conditions**

**Instructions to Students:**

1. Please write your name in the space above.
2. Read all questions carefully in the allocated reading time.
3. Allocate your time according to the marks allocated to the question.
4. At the conclusion of the examination, the question paper must be handed to the supervising teacher.
5. You are NOT permitted to bring mobile phone and/or any other unauthorised electronic communication devices into the room. Please leave them on the teacher’s desk as you enter the room.

**STUDENTS ARE NOT PERMITTED TO BRING MATERIALS EXCEPT PEN, PENCIL and ERASER TO THE SAC**

**Unit 1 Outcome 2**

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.

**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.

Section – A **Multiple Choice Questions**

1. In a \_\_\_\_\_\_ network, each device has its own set of cables leading to a central hub.
2. Bus
3. Ring
4. Star
5. Wireless
6. Resources that benefit from networking include:
7. databases, printing and disposal
8. storage of data, input and evaluation.
9. internet connections, input and validation.
10. printing, software and corporate Internet connections.

1. A capability of optic fiber cables is that
2. they are expensive.
3. data can travel long distances.
4. they can be made of plastic or glass.
5. thick gauge cables cannot bend easily.

1. What transmission media gives the fastest speed in a network?
2. wireless
3. fibre optic
4. microwave
5. unshielded twisted pair (UTP)
6. What name is given to a network with fewer than ten computers that share their files and printers, but has no main server?
7. A dedicated network
8. A peer-to-peer network
9. A ring network
10. A home network
11. Which item that is MOST important to host a website in an office?
12. Web Server
13. Modem
14. Networked Printer
15. Portable Hard Drive
16. Which of the following descriptions would best describe a modem?
17. Connects several LANs to create a WAN.
18. Connects several WANs to create a LAN.
19. Modulates digital signals so they can be sent over a telephone line.
20. Modulates analogue signals so they can be sent over a telephone line.
21. The PC hardware component that a network cable plugs into is referred to as a:
22. NIC
23. Hub
24. RJ-45
25. MAU
26. Which of these statements is TRUE about a LAN?
27. a LAN connects computers in a small area such as an office
28. a modem is needed to connect a computer to a LAN
29. a LAN consists of only one computer
30. is the other name for internet
31. What are the three main network topologies?
32. coach, ring, star
33. bus, square, star
34. bus, ring, star
35. Network architecture, which involves at least one computer on the network controlling access of workstations to network resources, is known as a \_\_\_\_\_\_\_\_\_ model.
36. P2P
37. client-server
38. Peer-to-peer
39. master-slave
40. Nola's and Ben's computers are part of a network. Recently Nola's computer became infected with a worm. Which statement is most correct?
41. The worm will not spread to Ben's computer because it is not a useful program.
42. The worm will spread to Ben's computer only if Nola sends an infected file to Ben as an email attachment.
43. The worm will spread to Ben's computer only if a copy of one of Nola's infected files is opened on his computer.
44. The worm will spread to Ben's computer by sending a copy of itself through the network and infecting one of his files.
45. Which of these devices can act as sending and receiving devices?
46. Desktop computers, servers and mainframes
47. Mobile phones, PDAs and GPS devices
48. Notebook computers, tablet PCs and web-enabled pagers
49. All of the above
50. \_\_\_\_\_\_\_\_\_\_ is used to block unauthorized access to computer systems by blocking ports on your computer
51. Anti-virus
52. Operating System
53. Malware
54. Firewall
55. The most likely device to connect multiple devices in a LAN would be a \_\_\_\_\_\_\_ & device that allows many LANs to connect together to form a WAN is \_\_\_\_\_\_\_
56. Network Interface Card, Router
57. Router, Switch
58. Switch, Router
59. Network Interface Card, Switch
60. What is a network diagram used for?
61. To identify the major processes within an information system
62. To show the flow of data through a system
63. To show the physical devices and communication lines in a network
64. To show the logical design of a network
65. Which of the following would NOT be a physical method of protection?
66. CCTV Camera
67. Encryption
68. Lock on doors
69. Security Guards
70. Sam finds a software program on his PC which he has not installed. He believes that it was installed without his knowledge while he was visiting a "warez" website. This clandestine method of delivering software is known as
71. Trojan
72. Worm
73. Virus
74. Spyware
75. Networked nodes located in close proximity may form part of a \_\_\_\_\_\_, whereas if they are spread over a large geographical area they are said to form part of a \_\_\_\_\_\_\_\_.
76. LAN, WAN
77. WAN, LAN
78. large network, small network
79. communications chain, broadband cable network

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1. Which of the following network transmission media is capable of the fastest rate of data transmission?
2. Twisted-pair cable
3. Coaxial cable
4. Bluetooth wireless transmission
5. Fibre-optic cable

Section – B **Case Study**

**Shifty Autos**

Sid Shifty is the owner and manager of Shifty Autos. In addition to himself as the manager, he also employs two sales people and a mechanic. Currently the office runs the following information system:

Sid stores all the sales data on his personal computer which is located in a corner of the main showroom. The computer is about five years old, and it seems to be working OK, although sometimes it is a little slow to boot up in the mornings. It is running Windows XP, has 512 MB of DDR memory, a 56 Kb modem and a 40GB hard drive and a 1.7GHz Pentium M processor.

Sid doesn’t know much about computers. When he first purchased the computer, it had 12 months anti-virus protection, however he hasn’t paid the bill to upgrade it since. He figures that he has never had a virus, so he doesn’t need it. Sid has internet and email access on his computer.

Sid also has his own printer attached to this computer – he prints out monthly sales figures and other important financial and legal documents. He also uses it to print out contracts with customers, which may contain confidential information regarding names, addresses and income. Any unwanted printouts just go straight into the bin.

The office is shared between Sid and the two sales people. There is one computer and printer which both the sales people share. The data which is on this computer relates to the repair side of the business – when customers come in to have their vehicles serviced or repaired, one of the salespeople enter the details onto the computer, and an invoice is generated when the job is complete. Any of the sales staff can log into this computer by typing in the same user name (staff) and password (shifty).

If they want to look up any information relating to sales (past or present), they have to go through Sid, who is often taking a “long lunch” at the pub with his mates. Sometimes sales are lost because the salespeople are not able to access the required data quickly and efficiently and customers just walk away. Any emails for the sales team are downloaded, printed and distributed by Sid. He doesn’t want the sales people having their own email or internet access because he thinks they will just use it to waste time chatting to their friends, or surfing the net when they should be working. (Sid is a little old fashioned in this regard). If they need to reply to an email, they have to write it down, give it to Sid and he types and sends it.

A couple of months ago, one of Sid’s friends, Dan Dodgy, had a fire in his caryard which destroyed all his customer records. Sid doesn’t want the same thing to happen to him, so he has decided that once a month he will make a copy of all the data on his computer. The backup CD will then be stored in the drawer of his desk.

The caryard is patrolled by a friendly Labrador dog when it is closed. Should any burglar get past this highly trained “attack machine”, there is a standard lock on the front door of the office and a fake camera (made of a tin can) which looks as if it might be some sort of recording device. Sid doesn’t have any specific security devices on his computers – he figures the cars in his yard are more valuable.

**Question 1 3 Marks**

Sid was told that he needs to set up a network. Describe three significant advantages of a networked solution over the current stand-alone system used at the Shifty Auto

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| Advantage 1: |
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| Advantage 2: |
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| Advantage 3: |
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**Question 2 2 Marks**

Draw a simple Network Diagram, showing different hardware devices used in Shifty Auto family to connect to the internet.

**Question 3: 3 marks** Sid wishes to establish a website for his business. The website will be located on their network. List the hardware and software is required to establish the site.

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| Hardware: |
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| Software: |
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**Question 4: 4 marks**

Sid also wants to employ an IT professional to assist with the development and support of the network. Describe the role and three responsibilities of the network administrator

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| Role” |
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| Responsibility: 1 |
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| Responsibility: 2 |
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| Responsibility: 3 |
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**Question 5: 6 marks**

Describe three potential security threats to the information stored and communicated via the Shifty Auto network.

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| Threat 1: |
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| Threat 2: |
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| Threat 3: |
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**Question 6: 2 marks**

For one of your answers to Question 5, explain two security strategies that you would recommend ways against this threat?

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