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**

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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. The PC hardware component that a network cable plugs into in your desktop computer is referred to as a:
2. NIC
3. Hub
4. RJ-45
5. MAU
6. Which of these statements is TRUE about a LAN?
7. a LAN connects computers in a small area such as an office
8. a modem is needed to connect a computer to a LAN
9. a LAN consists of only one computer
10. is the other name for internet
11. What are the three main network topologies?
12. coach, ring, star
13. bus, square, star
14. bus, ring, star
15. In a \_\_\_\_\_\_ network, each device has its own set of cables leading to a central hub.
16. Bus
17. Ring
18. Star
19. Wireless
20. Resources that benefit from networking include:
21. databases, printing and disposal
22. storage of data, input and evaluation.
23. internet connections, input and validation.
24. printing, software and corporate Internet connections.
25. 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 \_\_\_\_\_\_\_\_.
26. LAN, WAN
27. WAN, LAN
28. large network, small network
29. communications chain, broadband cable network

1. A capability of optic fiber cables is that EXCEPT
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. Which item that is MOST important to host a website in an office?
7. Web Server
8. Modem
9. Networked Printer
10. Portable Hard Drive
11. Which of the following descriptions would best describe a modem?
12. Connects several LANs to create a WAN.
13. Connects several WANs to create a LAN.
14. Modulates digital signals so they can be sent over a telephone line.
15. Modulates analogue signals so they can be sent over a telephone line.
16. Network architecture, which involves at least one computer on the network controlling access of workstations to network resources, is known as a \_\_\_\_\_\_\_\_\_ model.
17. P2P
18. client-server
19. Peer-to-peer
20. master-slave
21. Which of these devices can act as sending and receiving devices?
22. Desktop computers, servers and mainframes
23. Mobile phones, PDAs and GPS devices
24. Notebook computers, tablet PCs and web-enabled pagers
25. All of the above
26. What name is given to a network with fewer than ten computers that share their files and printers, but has no main server?
27. A dedicated network
28. A peer-to-peer network
29. A ring network
30. A home network
31. \_\_\_\_\_\_\_\_\_\_ is used to block unauthorized access to computer systems by blocking ports on your computer
32. Anti-virus
33. Operating System
34. Malware
35. Firewall
36. What is a network diagram used for?
37. To identify the major processes within an information system
38. To show the flow of data through a system
39. To show the physical devices and communication lines in a network
40. To show the logical design of a network
41. Which of the following would NOT be a physical method of protection?
42. CCTV Camera
43. Encryption
44. Lock on doors
45. Security Guards
46. 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
47. Trojan
48. Worm
49. Virus
50. Spyware
51. 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 \_\_\_\_\_\_\_
52. Network Interface Card, Router
53. Router, Switch
54. Switch, Router
55. Network Interface Card, Switch

|  |
| --- |
|  |

1. 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?
2. The worm will not spread to Ben's computer because it is not a useful program.
3. The worm will spread to Ben's computer only if Nola sends an infected file to Ben as an email attachment.
4. The worm will spread to Ben's computer only if a copy of one of Nola's infected files is opened on his computer.
5. The worm will spread to Ben's computer by sending a copy of itself through the network and infecting one of his files.
6. Which of the following network transmission media is capable of the fastest rate of data transmission?
7. Twisted-pair cable
8. Coaxial cable
9. Bluetooth wireless transmission
10. Fibre-optic cable

**Section – B** **Case Study**

**Smart Moves 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. Students use stand-alone computers to complete learning tasks with their tutors.

Ben 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.

Ben 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.

Ben 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.

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 students 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 students
* Internet access
* Email for all staff.

A couple of months ago, one of Ben’s friends, Dan Dodgy, had a fire in his caryard which destroyed all his customer records. Ben 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.

**Question 1 3 Marks**

Describe three significant advantages of a networked solution over the current stand-alone system used at the Quark household

|  |
| --- |
| Advantage 1: |
|  |
| Advantage 2: |
|  |
| Advantage 3: |
|  |

**Question 2 2 Marks**

Draw a simple network diagram, showing different hardware devices used in Quark 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.

|  |
| --- |
| Hardware: |
|  |
|  |
|  |
| Software: |
|  |
|  |
|  |

**Question 4: 4 marks**

Ben also wants to employ an IT professional to assist with the development and support of the network. Describe the role and three responsibilities of such a person for the Smartmoves network.

|  |
| --- |
| Role” |
|  |
|  |
|  |
| Responsibility: 1 |
|  |
| Responsibility: 2 |
|  |

|  |
| --- |
| Responsibility: 3 |
|  |

**Question 5: 6 marks**

Ben doesn’t have any specific security devices on his computers. Describe three potential threats to the security of the information stored and communicated via the Smartmoves network.

|  |
| --- |
| Threat 1: |
|  |
| Threat 2: |
|  |
| Threat 3: |
|  |
|  |

**Question 6: 2 marks**

For one of your answers to Question 3, describe two ways in by which Smart Moves Tutoring can protect itself against this threat?

|  |
| --- |
| 1, |
|  |
|  |
| 2. |
|  |
|  |
|  |