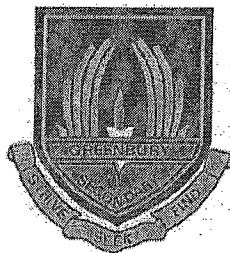INFORMATION TECHNOLOGY

SEPTEMBER CONTROL TEST 2015

GRADE 11

MARKS: 60

Examiner: M PADAYACHEE

TIME: 1 ½ HOURS

Moderator: S NAIDOO

DATE : 29 – 09 - 2014

INSTRUCTIONS:

1. This question paper consists of 8 pages including the cover page and an Annexure.

2. Answer all questions.

3. Use the mark scheme as a guide as to the number of points you should write.

4. Answer Q2.1.4. and hand in the annexure with your answer book.

QUESTION 1

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1–1.10) in your ANSWER BOOK.

1.1   Which of the following is NOT a cellular connection?

    A)   EDGE
    B)   3G
    C)   LTE
    D)   SSL

1.2   A key that uses a single 'secret' key.

    A)   Primary key
    B)   Private key
    C)   Foreign key
    D)   Public key

1.3   A search in which the results are customized by search engines like Google.

    A)   Profiled search
    B)   Context-aware search
    C)   Mediated search
    D)   Semantic search

1.4   The latest and still developing standard used for the compression of audio and visual digital data.

    A)   MPEG – 2
    B)   MP3
    C)   MPEG – 4
    D)   JPEG

1.5   Which ONE of the following tasks is NOT a typical function for home or personal use of computers?

A)   Accounting or billing

B)   Social networking

C)   Internet banking

D)   Limited office tasks

1.6   The average battery life on a Smartphone is ...

A)   6 – 10 hours

B)   10 – 24 hours

C)   3 – 10 hours

D)   24 – 34 hours

1.7   Which of the following technologies does cloud computing rely on?

A)   Information technology

B)   Wireless technology

C)   GPS technology

D)   Virtualisation technology

1.8   The process of ensuring that data meets a set of requirements.

A)   Validation

B)   Verification

C)   Integrity

D)   Warehousing

1.9   An RFID tag contains ...

A)   A radio chip, some circuitry and a microchip

B)   A micro card, some circuitry and an antenna

C)   An antenna, some bots and a microchip

D)   An antenna, some circuitry and a microchip

1.10 A ... is a computer attached to a network that has had its security compromised and as a result is remotely controlled for a purpose other than what it was intended for.

    A) bot

    B) puppet

    C) Trojan horse

    D) Zombie

[10]

SCENARIO

Your school needs to raise funds to open a Media Centre for the learners that attend the school. They have decided to have a mini singing competition called IT got Talent. You and your friends have been requested to assist the school in the administration and setup of the computers for both the competition as well as the media centre.

QUESTION 2

2.1 The management of the school has designed the database that will hold the information of the events and the participants. The table below shows the table **tblEvent**.

tblEvent					
EventID	Participant Name	Participant Surname	Catergory	Event Date	Event Time
HH001	Adam	Joans	Hip-Hop	12-Sep-15	09h00
RP005	Llewellyn	Iyer	Rap	13-Sep-15	09h30
JZ008	James	White	Jazz	14-Sep-15	09h00
CL111	Thandi	Khumalo	Classical	16-Sep-15	09h30
HH001	Themba	Gumede	Hip-Hop	12-Sep-15	09h00
RP005	Peaceful	Zungu	Rap	13-Sep-15	09h30
JZ008	John	Govender	Jazz	14-Sep-15	09h00
JZ008	Shaheel	Maharaj	Jazz	14-Sep-15	09h00
CL111	Sole	Buddy	Classical	16-Sep-15	09h30

2.1.1 Data integrity and data redundancy are two ways in which one can improve a database.

Briefly differentiate between *data integrity* and *data redundancy*. (2)

2.1.2 Name and explain ONE type of anomaly. (2)

2.1.3 Give ONE advantage of data independence. (1)

2.1.4 You need to normalise the **tblEvent** table to 2NF. Answer this question on ANNEXURE A (attached) by doing the following:

    a) Separate the fields in the **tblEvent** table into two new tables, **tblEvent** and **tblParticipant**. (4)

b) Clearly indicate which field (s) in the **tblEvent** and **tblParticipant** tables will serve as the primary key field (s). Indicate using PK. (2)

c) Clearly indicate the type of relationship between the two tables using a line drawn between the relevant fields. (2)

d) Indicate any relevant foreign key field (s). Indicate using FK. (1)

2.2 Study the database below and answer the questions that follow.

The table **tblVoters** below contains details about individuals that have voted for the participants. **VoterID** represents a unique voter number. **PrizeID** represents a unique code for each prize.

tblVoters				
VoterID (PK)	VoterName	VoterSurname	Age	PrizeID (FK)
12345	Blane	Pillai	25	RC11
67894	Terry	Mthembu	18	TB01
12546	Roland	Chetty	26	RC11
12584	Keshnee	Smith	20	BD14
15478	Akira	Singh	16	BD14

The table **tblPrize** below contains details about the prize that each individual will receive if they have voted for the participants.

tblPrize			
PrizeID (PK)	Description	Cost	Restriction
TB01	Teddy Bear	R 5-00	> 3 years
RC11	Remote Control	R 9-00	> 10 years
BD14	Barbie Doll	R 6-00	>12 years

2.2.1 Write SQL statements for each of the following requests:

a) Display all the details of each voter in ascending order of the voter's age. (3)
b) Display the PrizeID and Description of all those prizes that cost more than R 6-00. (3)
c) Display the name, surname and prize description for all those voters who are older than 20.

NOTE: You will need to link the tables with an appropriate where clause. (5)

Total for Section D: 25

QUESTION 3

3.1 Now that the competition is reaching the finals, the voting process has become mobile so that people with smartphones, tablets and phablets can vote from anywhere.

    3.1.1 What is a phablet? (1)

    3.1.2 Name ONE disadvantage of a smartphone. (1)

    3.1.3 Other than the mobility of a mobile device, name ONE advantage of a mobile device. (1)

    3.1.4 Smartphones have many advantages. Two of these advantages is that they are 'always on' and/or 'always connected.'

        Differentiate between *always on* and *always connected*. (2)

    3.1.5 Mobile devices have limited battery life.

        List TWO tasks that you have to perform to prove that mobile devices have a limited battery life. (2)

    3.1.6 Having mobile devices, one is able to install and use e-readers.

        a) What is the purpose of an e-reader? (1)

        b) Name TWO advantages and ONE disadvantage of dedicated e-reader devices in mobile technology. (3)

3.2 The principal has decided to save some of the videos of the performances using cloud computing as well as upload some of the videos on Youtube.

    3.2.1 Describe in detail how cloud computing works. (2)

    3.2.2 Name ONE cloud application that can be used by the principal. (1)

    3.2.3 Name and explain TWO benefits of using cloud computing. ( )

    3.2.4 People will be given the opportunity to either download the videos or to stream the videos.

        How does *downloading* a video differ from *streaming* a video? (2)

    3.2.5 Online storage is a good way of creating a backup of files, documents and multimedia.

        a) Explain how the process of *disk imaging* works as a form of backup. (2)

        b) List TWO tips to consider when creating backups. (2)

3.3 Due to many people using the computers setup for the competition and having the computers connected to the Internet, the computers have many security threats even though they have anti-virus software installed.

3.3.1 Name ONE reason why the computers were infected if it had anti-virus software instaled. (1)

3.3.2 The IT learners have setup a firewall on the computers.

Explain how a firewall will reduce the infection rate on the computer by making reference to what a firewall is and how it works. (2)

3.4 Now that the competition is growing. Many of the videos and details of the participants are now on the Internet for people to see and vote for who they think should win this competition.

3.4.1 Explain to the principal how the participants are now subjected to identity theft. (2)

3.4.2 The theft of participant details is not the only theft that can happen when using computers and the Internet.

Name and explain ONE example of theft of resources. (2)

3.4.3 The IT learners have ensured that whatever has been created or sent over the Internet has a digital signature and or a digital certificate.

a) Of what purpose is a digital signature? (1)

b) List THREE details that a digital certificate must contain. (3)

3.5 Social networking has become a huge demand due to the competition that the school is having.

3.5.1 Explain how social networking will assist the school in the competition. (1)

3.5.2 A *wiki* is said to be a type of social networking tool.

a) What is meant by the term wiki? (1)

b) Give ONE example of a wiki. (1)

3.6 The school principal has decided that he wants to let this competition go global.
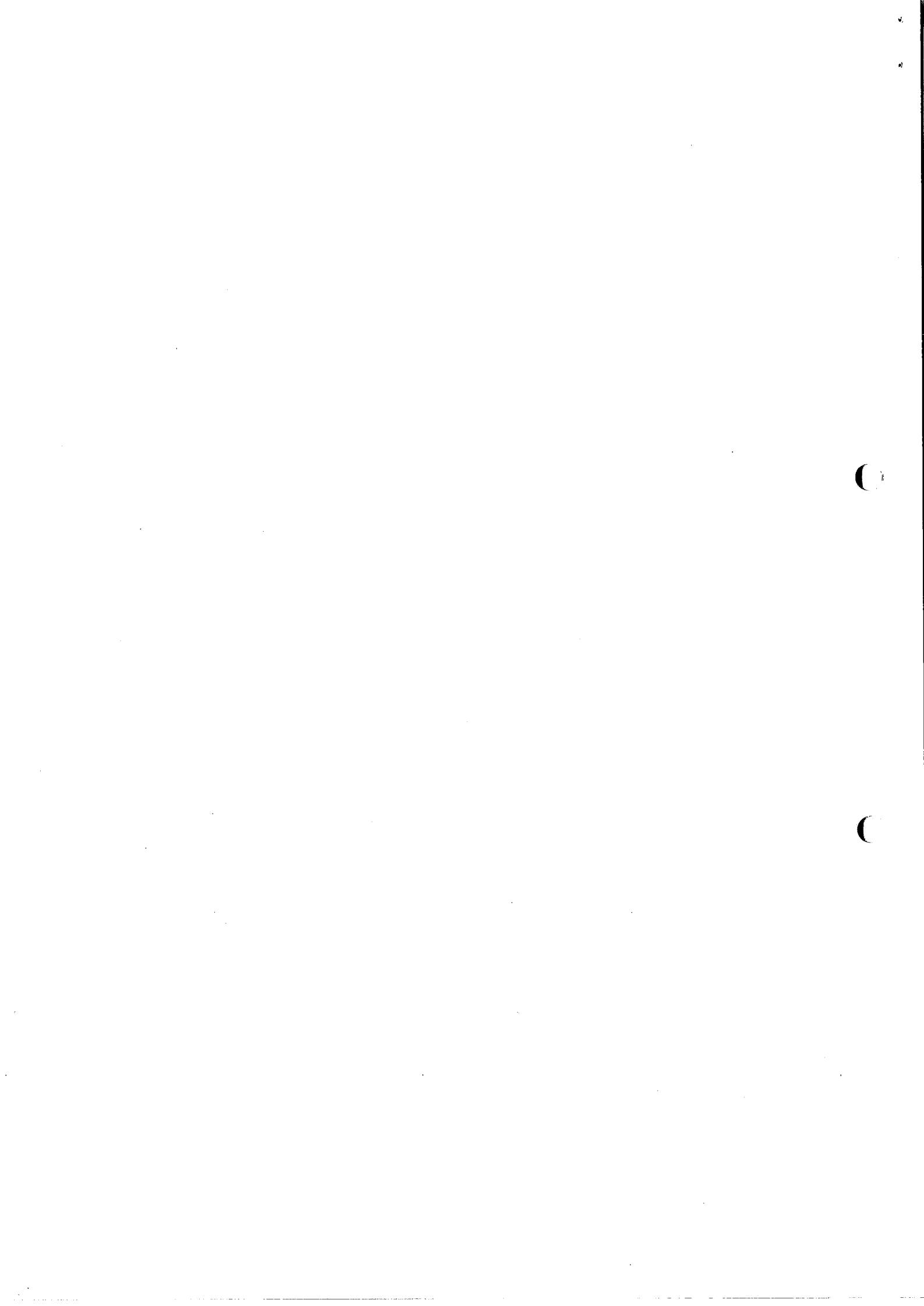
Explain what is meant by the term *globalisation*. (2)

[40]

GREENBURY SECONDARY SCHOOL
DEPARTMENT OF MATHS & SCIENCES
H.O.D. MR L PILLAY

Full Name: _____

Grade/Div: _____

KEY(s)	tblParticipant

KEY(s)	tblEvent

GREENBURY SECONDARY SCHOOL

DEPARTMENT OF MATHS & SCIENCES

H.O.D. MR L PILLAY

17/09/2015

1.1. D
1.2. B
1.3. A
1.4. C
1.5. A
1.6. B
1.7. D
1.8. A
1.9. D
1.10. D

GREENBURY SECONDARY SCHOOL
DEPARTMENT OF MATHS & SCIENCES
H.O.D. MR L PILLAY
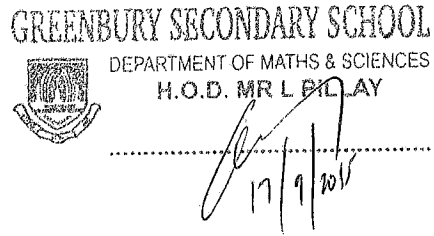
2.1. 1.
Data integrity refers to maintaining the accuracy and consistency of data stored in a database ✓ where as data redundancy speaks to unnecessary repetition of data across multiple fields in a database or the intentional duplication OR distribution of the database across multiple storage media. ✓ (2)

2.1.2.
- insert – the database design prevents a user from capturing data when they want or need to
- delete – deleting one piece of data results in the simultaneous removal of other, unrelated data.
- update – when an item of data changes, it has to be altered in multiple records in the table.

2.1.3.
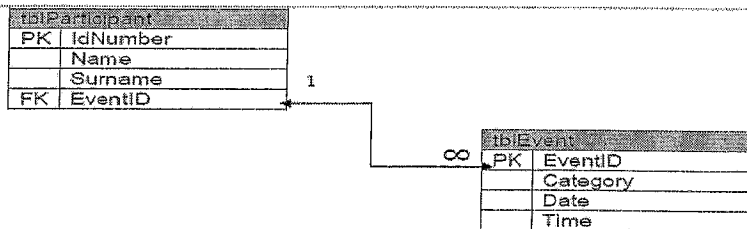
- the user application cannot change the structure or the format of the data
- multiple applications can interface to the same data
- data management is left to the DBMS software

✓ (accept one advantage)

	Description	Mark
a)	for the fields split in the two tables correctly and Annexure used.	✓✓ tblParticpant ✓✓ tblEvent
b)	Unique field in tblParticipant clearly indicated	✓
	EventID PK indicated in tblEvent	✓
c)	1 – ∞ relationship	✓
	Line drawn in Correct field	✓
d)	EventID FK indicated in tblParticipant	✓

2.1.4.

2.2.1.
SELECT * ✓ FROM tblVoters ✓ ORDER BY Age ✓ (3)

2.2.2.
SELECT PrizeID, Description ✓ FROM tblPrize ✓ WHERE Cost > 6 ✓ (3)

2.2.3.
SELECT VoterName, VoterSurname, ✓ tblPrize.Description (5)
✓ FROM tblParticipant, tblPrize ✓ WHERE tblVoters.PrizeID =
tblPrize.PrizeID ✓ AND Age > 20 ✓

[25]

3.1.1.
It is a combination of a Smartphone and tablet that has a screen size (1)
between 5 and 8 inches. ✓

3.1.2.

• can combine functions in new, creative ways, which allow you to carry fewer
items
• are not restricted by time or location
• can achieve or produce more in less time

✓ (Any relevant advantage)

(1)

• cannot run the same full-scale productivity apps
• input can be difficult
• not easily expandable with peripherals

✓ *(Any relevant disadvantage)*

3.1.3.

• can combine functions in new, creative ways, which allow you to carry fewer items
• are not restricted by time or location
• can achieve or produce more in less time

☐ **(Any relevant advantage)**

3.1.4.
Always on refers to mobile technology is never off, its always working in the background
✓where as always connected deals with a device being connected to the Internet. ✓

3.1.5. (2)
• always have to have access to chargers or carry spare
• never quite make it through the day without running out of power
• have to make choices and limit how much we use our devices to conserve
power
• there is a trade off between computing power and power consumption

✓✓ (any TWO tasks that can be performed)

3.1.6. a)
E-readers are devices that let you read e-books. ✓ (1)

3.1.6.b)
Advantages
- cheaper than a tablet or smartphone
- smaller and lighter than a tablet
- longer battery life
- easy to read in sunlight

Disadvantage
- single-purposed
- an extra item to carry around

(TWO advantages and ONE disadvantage)
NOTE TO MARKER: *do not award marks for cheaper and smaller only as advantages.*

3.2.1.
Is where you pay a subscription fee ✓ to be able to access scalable computing (2) resource or software remotely, using the internet. ✓

3.2.2.

- Scalability – the ability to increase or decrease in size and power quickly and effectively.
- Ubiquity – as long as you have Internet you can access whatever you want anywhere and anytime.
- enables collaboration – because data is not limited to a single machine, multiple people can access it at once and work together
- Outsources maintenance and upgrades of hardware – no cost for buying hardware, or repairing and marinating computers.

(Any TWO benefits. One mark for naming and one mark for the explanation)

3.2.4.
Downloading a file or media means that it is downloaded and saved on your (2) device ✓ where as streaming a file is opend and is streamed in real-time on your device. ✓

3.2.5. a)
It makes a complete backup 'image' ✓ of your entire hard drive including all (2)

your software and then you can install this image on a new hard drive. ✓

3.2.5. b)

(2)

- programs can be re-installed, so there is no need to back those up
- automate or schedule the running of the backup software
- backup your files onto external storage device
- performing house keeping so that you don't have multiple versions of the same data
- consider archiving large files

√√(Any TWO relevant tips)

3.3.1.

- to many anti-virus installed
- anti-virus not updated

✓ (Any relevant answer)

3.3.2.

It can consist of hardware or software or a combination of both ✓   and   (2)
acts as a barrier between your computer and the internet. ✓

3.4.1.

Identity theft occurs when someone steals your details ✓   so that they can pretend to be you so in this case participant's details can be subjected to this theft because people will need their details to vote for them. ✓
(accept relevant explanation

3.4.2.

- Piggybacking – criminals gain access to and use someone else's Internet connection without paying for it.
- Botnets – use malware to gain control of multiple computers without the user(s) knowing it.

√√ (ONE mark to name and the other to explain)

3.4.3. a)

It is used to identify the sender of a message or the signatory of a document.✓

3.4.3b)

- owners public key
- owner's name
- expiration date of the public key
- name of the issuer
- serial number of the digital certificate
- digital signature of the issuer.

√√√ (Any THREE of the above)

3.5.1.
Almost everyone in the 21st century have some for of social networking so by the school using this they can advertise the school and competition and bring in more money as well as get a larger amount of people to vote and assist the school. √ (1)

3.5.2.a)
Is a web application that allows people to add to and (1)
modify content of an online knowledge resource. ✓

3.5.2.b)
Wikipedia ☐

3.6.
It is the integration of economics, cultures, ideas and grou across the globe ✓ driven by a world-wide network of communication. ✓