



HILLCREST HIGH SCHOOL INFORMATION TECHNOLOGY

GRADE 10 P2: PRACTICAL PAPER

TERM 4 NOVEMBER 2018

TIME: 3 HOURS

TOTAL: 150 MARKS

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MODERATOR:



MARKS: 150

This question paper consists of 16 pages

TIME: 3 HOURS

INSTRUCTIONS AND INFORMATION

This question paper consists of:

SECTION A:

Question 1 Short Questions (25)

SECTION B:

Question 2: System Technologies: Hardware and Software (26)

SECTION C

Question 3: Communication & Network Technologies (25)

SECTION D

Question 4: Data & Information Management Theory and
Number Conversions (22)

SECTION E

Question 5: Solution Development (25)

SECTION F

Question 6: Social Implications (27)

1. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. Start EACH question on a NEW page.
4. Do NOT write in the right-hand margin of the ANSWER BOOK.
5. Leave a line after EACH sub-question.
6. The mark allocation generally gives an indication of the number of facts required in your answer.
7. Write neatly and legibly.

SECTION A

QUESTION 1- SHORT QUESTIONS

1.1 MULTIPLE CHOICE

Various options are provided as possible answers to the following questions. Choose the answer and write ONLY the letter next to the question number. For example :1.1.11 E.

1.1.1 The World Wide Web...

- A refers to the Internet.
- B consists of a large number of computers in a particular location.
- C is the physical connection between many computers.
- D is a service that provides access to a large volume of information (1)
stored on computers around the world.

1.1.2 Which ONE of the following terms refer to the ability to plug a device into a computer while the power is on and the computer is working?

- A Hot-swappable
- B Plug-and-Play
- C Interrupt-handling
- D USB3 (1)

1.1.3 The type of system software that can be used to perform routine maintenance tasks is known as...

- A The Database Management Software
- B Utility software
- C Device Drivers
- D Communication software (1)

1.1.4 Bandwidth in e-communication refers to...

- A the data transfer rate over a communications channel
- B the total number of files that can be transferred by one user
- C the width of the cable whereby data is being transferred
- D the media where one is able to surf the net and make telephone (1)
calls at the same time.

1.1.5 How many times will the following loop be executed?

```
for i := 5 downto -2 do  
RichEdit1.Lines.Add(i);
```

- A 7
- B 8
- C 0
- D 3

(1)

1.1.6 **7 mod 5 + 10 div 3 =...**

- A 2
- B 3
- C 4
- D 5

(1)

1.1.7 An identity theft scam where a user's computer is infiltrated so that they are automatically redirected to another website even if the correct URL is typed in, is...

- A Phishing
- B Spoofing
- C Pharming
- D Spamming

(1)

1.1.8 Which one of the following does NOT conform to sound netiquette

- A Send short attachments in e-mails.
- B Always add a subject in the subject line of an e-mail.
- C Always perform a spell check on an e-mail before sending.
- D Respond only to high-priority e-mail messages.

(1)

1.1.9 Which ONE of the following has the largest storage capacity?

- A 200 KB folder
- B 32 GB flash disk
- C 2 TB hard drive
- D 740 MB DVD (1)

1.1.10 Which ONE of the following represents access speed in descending order?

- A Cache, RAM, Solid State Drive, Hard disk
- B RAM, cache, Solid State Drive , Hard disk
- C Solid State Drive, Hard disk, RAM, Cache
- D RAM, cache, Hard disk, Solid State Drive (1)

[10]

1.2 TERMS:

Give ONE word/term for each of the following descriptions. Write only the word/term.

- 1.2.1 Software which is distributed freely but only for a limited time period or with limited functionality (1)
- 1.2.2 The name of the socket that houses the CPU on the motherboard. (1)
- 1.2.3 Security scanners that are specifically designed to read and identify unique characteristics of humans. (1)
- 1.2.4 Part of an organisation's intranet that is made available to users outside the organisation. (1)
- 1.2.5 A copyright licence that allows one to use parts of, copy and distribute work for non-profit purposes. (1)
- 1.2.6 Programs that make it possible for operating systems to communicate with and control hardware devices. (1)
- 1.2.7 A website that allows people to create and edit web content collaboratively. (1)

- 1.2.8 The gap between people that have access to computers and technology and those who do not. (1)
- 1.2.9 Initiatives to design, use and dispose of computing devices in an environmentally friendly way. (1)
- 1.2.10 A destructive program that is disguised as a useful application but does harm to your system as soon as you open and run it. (1)

[10]

1.3 TRUE/FALSE

For each of the following statements write down whether it is TRUE of FALSE. If you state that it is FALSE, you must provide the correct statement by simply changing a single(underlined) word. No marks will be awarded if you have written down that the statement is false and you have not corrected it.

- 1.3.1 A diagrammatic visual representation of the sequence of steps required to solve a problem is referred to as Pseudocode. (1)
- 1.3.2 A firewall is a combination of software and hardware that allows you to control which programs can access the Internet. (1)
- 1.3.3 The while loop is regarded as an unconditional looping structure. (1)
- 1.3.4 A scanner is a device that is able to digitize an image. (1)
- 1.3.5 A plug in the general name for software that adds functionality to a bigger program, often to a web browser. (1)

[5]

TOTAL SECTION A [25]

SECTION B

QUESTION TWO - SYSTEM TECHNOLOGIES

Study the advertisement below and answer the questions that follow:



The advertisement displays a desktop computer system. On the left is a black desktop tower. To its right is a red plus sign. Further right is a black 17-inch LCD monitor. Below the monitor is a black keyboard and a black mouse. Labels '17" LCD Monitor' and 'Keyboard & Mouse' are placed under their respective items. To the right of the monitor and keyboard is a box containing the following specifications:

- Intel core i5-8400 2.8 GHz 6Core
- 8GB DDR4
- 1024 GB 7200 RPM SATAIII
- NVIDIA GTX 1060
- Windows 10 Home 64 bit
- 3x USB 3.1 and 2 USB 2.0

The hardware specifications of a computer are given in the advertisement above.

- 2.1 What does the term *hardware* refer to? (1)
- 2.2 IPO refers to Input, Processing and Output. From the advertisement, identify:
- 2.2.1 An input component (1)
- 2.2.2. A component used in processing (1)
- 2.2.3 An output component (1)
- 2.3 What is the purpose of primary memory in the computer? (1)
- 2.4 The CPU is a large chip which has millions of tiny components built into it.
- 2.4.1 Name the company that manufactures the processor in this computer. (1)
- 2.5 What is the capacity of the internal storage? (1)
- 2.6 The computer does not come with optical technology to store data.

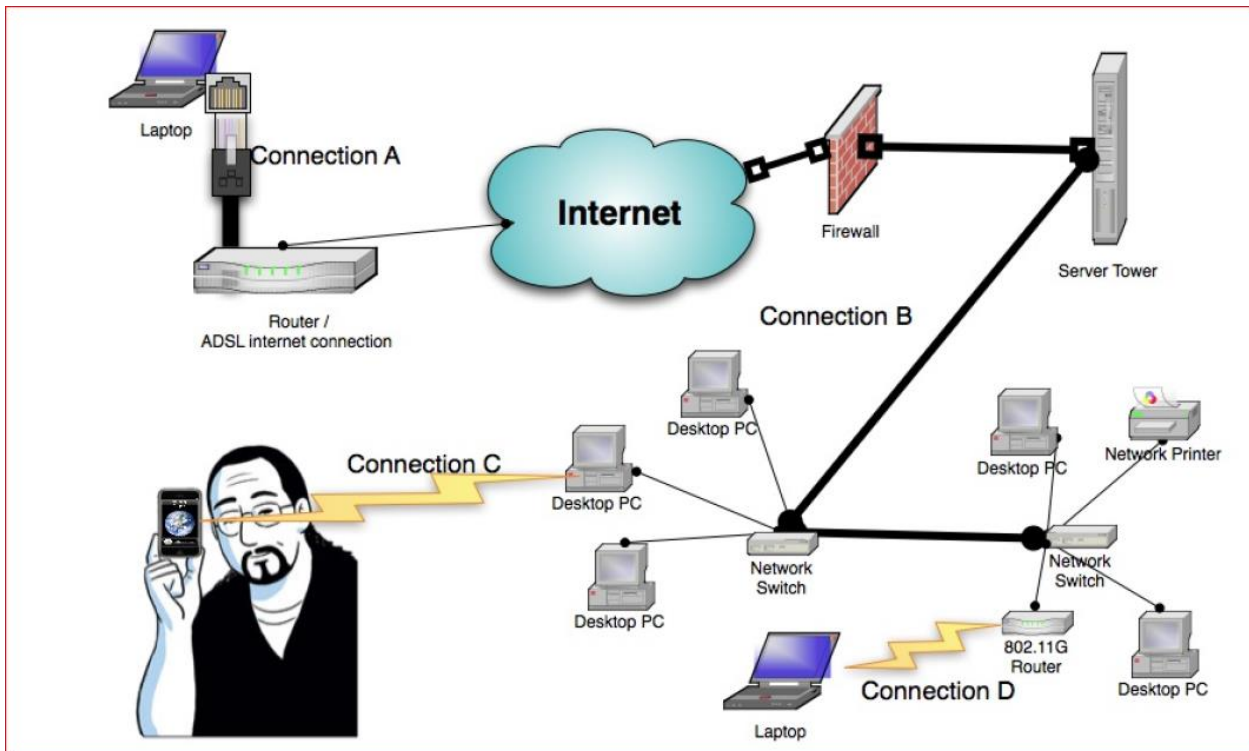
- 2.6.1 Provide TWO reasons why CD's and DVD's are no longer popular storage media. (2)
- 2.6.2 Provide TWO reasons why Flash drives have become popular. (2)
- 2.6.2 What does the acronym USB stand for? (1)
- 2.7 Solid State Drives are used in devices such as smart phones and consumer tablets.
State 2 differences between solid state drives and magnetic hard drives. (2)
- 2.8 The resolution of a monitor is very important.
- 2.8.1 What does the term *resolution* refer to? (2)
- 2.9 *Software* refers to programs that tell the computer what to do. Without it, the computer has no functionality.
- 2.9.1 Describe the function of System software and Application software and give an example of each. (4)
- 2.10 An operating system is a collection of programs.
- 2.10.1 Name the operating system that is pre-installed on the machine. (1)
- 2.10.2 List THREE functions of an operating system. (3)
- 2.10.3 Is the operating system that is pre-installed an example of Open Source Software or Proprietary Software. Explain your answer. (2)

TOTAL SECTION B: [26]

SECTION C

QUESTION 3: COMMUNICATION AND NETWORK TECHNOLOGIES:

The extraordinary growth and development in ICT over the years, has made a huge and profound impact on the way we live, work, relax and think. The usefulness and potential of networking computers and computing devices have opened huge doors for both public and private enterprises as well as individuals alike.



The network diagram above represents the various connections available in a computer lab in a school.

- The teacher's laptop connects to the Internet using **Connection A**.
- The internal network of the lab uses **Connection B**.
- **Connection C** represents a teacher connecting to a desktop using his smart phone.
- **Connection D** represents a learner's laptop connecting wirelessly to the network.

Consider all the labelled connections in the diagram. Each connection uses a specific type of technology and a physical medium.

- 3.1 Although networking computers has many advantages in an organisation, there may be some challenges from a set up and management point of view. Name TWO of these challenges.

(2)

- 3.2 A cabled LAN exists in the computer lab.
- 3.2.1 Give TWO reasons why UTP cables will be the most suitable type of cable to connect the computers. (2)
- 3.2.2 Explain why the school LAN would require both a router and a switch by referring to the function of each device. (3)
- 3.3 **Connection B** uses fibre optic cables.
- 3.3.1 What is the physical medium via which fibre optic cables transmit data? (1)
- 3.3.2 Write down the physical medium via which Connection D transmits data. (1)
- 3.3.3 Write down TWO disadvantages of using Fibre optic cables in this LAN. (2)
- 3.4 The computers in a LAN can be classified according to the services they provide. Three main roles are clearly identifiable namely clients, servers and peers.
- 3.4.1 Clearly distinguish between a *fat client* and a *thin client*. (2)
- 3.4.2 A file server is the most common server found in a network environment. Name TWO other types of servers. (2)
- 3.3.3 Tabulate THREE differences between a *Peer to Peer LAN* and a *Client Server LAN*. (3)
- 3.5 The vast array of tools / applications available to facilitate e-communication are evolving at a rapid rate. Social networking sites and video conferencing are amongst the list of useful tools that many of us utilise regularly.
- 3.5.1 Name TWO popular social networking sites. (2)
- 3.5.2 Many companies have banned the use of social networking sites by their employees and have blocked these sites. Give TWO reasons why this may be so. (2)
- 3.5.3 Name the protocol used for video conferencing. (1)
- 3.5.4 Write down ONE advantage and ONE disadvantage of using video conferencing to communicate. (2)

TOTAL SECTION C [25]

SECTION D

QUESTION FOUR - : DATA AND INFORMATION MANAGEMENT

- 4.1 What is the difference between data and information? (2)
- 4.2 If a file is 5 253 125 bytes. How big is this file in Mb? (2)
- 4.3 Convert 11001_2 to a decimal number. (3)
- 4.4 Convert $4B2C_{16}$ to a decimal number. (3)
- 4.5 Convert 632 to a octal number. (3)
- 4.6 When looking for a particular file, it is important to know the location of the file. Consider the path below:
E:\Grade 10 IT\November\PractTest1.docx
- 4.6.1 What is the difference between a path and a file name? (2)
- 4.6.2 Identify the path and the file name in the example above (2)
- 4.6.3 What is the file extension for the file name above (1)
- 4.6.4 What is the purpose of having a file extension? (2)
- 4.6.5 Explain why it is not a good idea to change the file extension yourself. (2)

TOTAL SECTION D: [22]

SECTION E**QUESTION 5- SOLUTION DEVELOPMENT**

5.1 Computer experts emphasize the importance of the planning stages in programming. One of the ways to plan a solution effectively is to write out an algorithm.

5.1.1 Write down THREE characteristics of a good algorithm. (3)

5.1.2 Explain why an algorithm designed in pseudocode should not be programming language specific. (2)

5.1.3 A school is hosting a variety concert. They require software to determine how well the concert was received by the audience. The following pseudo code was written to count the number of people that rated the concert as either of a high standard or of a low standard.

Any ticket holder at the concert can enter their ticket number and a rating. The number **1** is used for a **high standard rating** and the number **0** is used for a **low standard rating**.

The algorithm will display the total number of high ratings and the total number of low ratings separately. Input is terminated when a value of **0** is entered for a **ticket number**.

Study the algorithm below and answer the questions that follow.

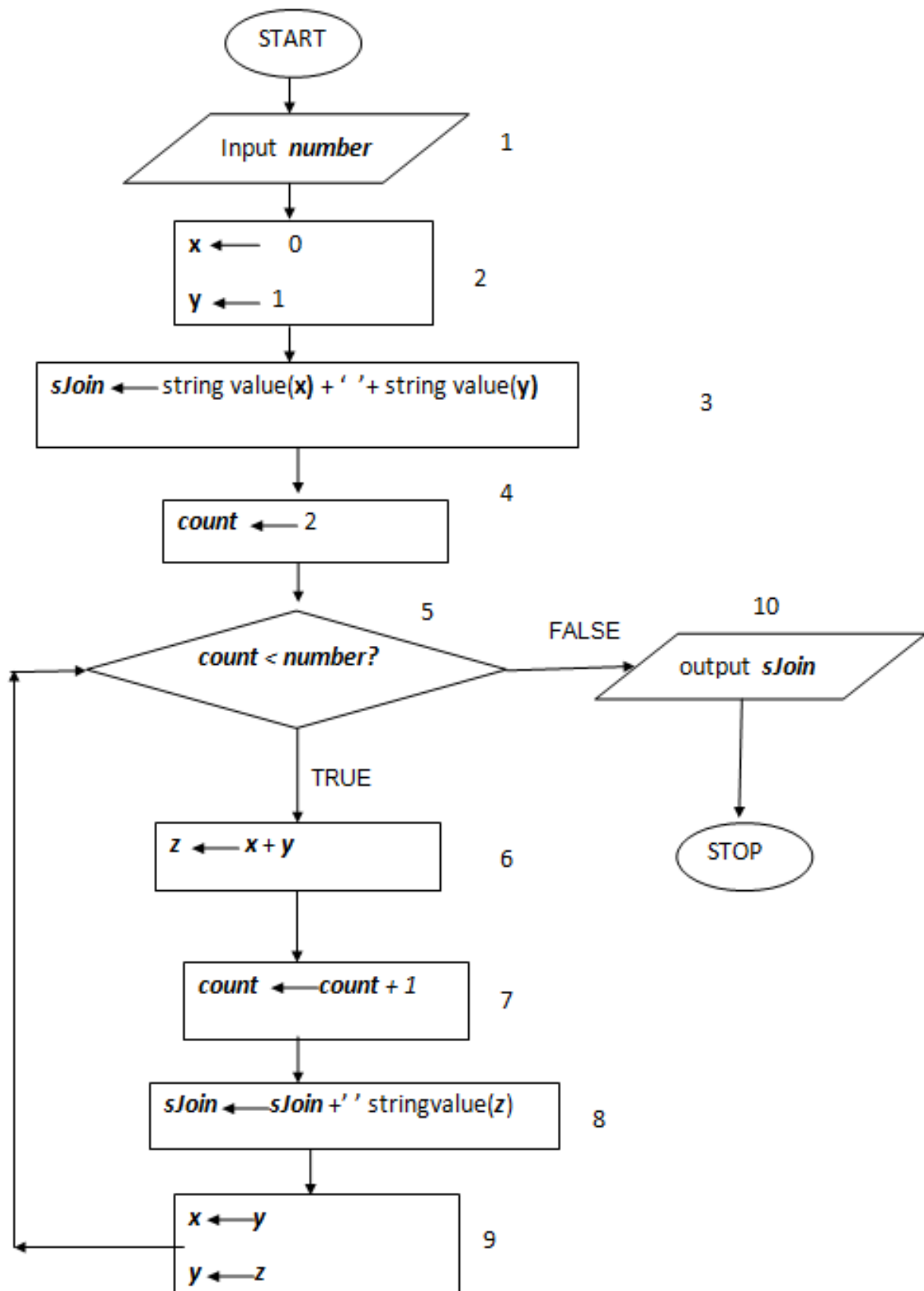
| Line Number | Description |
|-------------|---|
| 1 | countHighRatings ← 0 |
| 2 | countLowRatings ← 0 |
| 3 | Input ticket number |
| 4 | While ticket number not equal to 0 |
| 5 | Start While loop |
| 6 | Input Rating |
| 7 | If rating equals 1 |
| 8 | countHighRatings ← countHighRatings + 1 |
| 9 | otherwise |
| 10 | countLowRatings ← countLowRatings + 1 |
| 11 | End While Loop |
| 12 | Display countHighRatings |
| 13 | Display countLowRatings |

- 5.1.3.1 Explain why a conditional loop is necessary for this application. (2)
- 5.1.3.2 Give a reason why the above algorithm will result in an infinite loop. (2)
- 5.1.3.3 A single statement needs to be inserted to ensure a successful output. Write down the single statement as well as line numbers between which it should be inserted. (2)

5.2 Carefully study the given flowchart and answer the questions that follow.

- 5.2.1 Use the printed trace table to trace through the flowchart and determine the output it produces for **an input value of 7.**
Attach this to your answer booklet. (10)
- 5.2.2 Explain the task that the flowchart accomplishes. (2)
- 5.2.3 Write down the output that the flowchart would produce for an input value of 10. (2)

TOTAL SECTION E [25]



SECTION F

QUESTION SIX – SOCIAL IMPLICATIONS

The demands of a student these days has increased. You need to constantly research information for many projects, download information, print information etc.

- 6.1 When installing Microsoft Office 2013 on your pc, the following Agreement is displayed on your screen:



- 6.1.1 What is this Agreement called? Provide the Agreement's full name and acronym. (1)
- 6.1.2 Explain why it is important to read the licence Agreement before clicking on the 'I accept button'. (2)
- 6.2 You friend wants to borrow your copy of Microsoft Office 2013 to install on his computer. Why should you prevent him from doing that? (2)
- 6.3 You have been working tirelessly for long hours at a time, to complete your PAT.
- 6.3.1 Name two health related issues caused by sitting at the computer all day. (2)

- 6.3.2 Suggest two ways how you can minimise these health related issues. (2)
- 6.4 Computers impact negatively on our environment.
Discuss THREE ways in which we can reduce this negative impact on our environment. (3)
- 6.5 Child trafficking has been on the rise recently. It has been reported that offenders have gained information via Facebook and Whatsapp. Suggest THREE safety precautions one can take when posting on social media. (3)
- 6.6 Describe THREE tell-tale signs that your computer is infected with a virus. (3)
- 6.7 Define the following:
- 6.7.1 Spam (1)
- 6.7.2 Spyware (1)
- 6.7.3 Computer worm (1)
- 6.8 Your friend's father has been a victim of identity theft after responding to an email from her bank requesting personal details.
- 6.8.1 Explain what Identity theft is? (2)
- 6.8.2 What technique was used to achieve this. (1)

- 6.9 A hoax or scam is a deliberate attempt to deceive or trick people into believing or accepting something that is untrue.



Discuss THREE ways in which you can protect yourself from becoming gullible victims of these hoaxes or scams. (3)

TOTAL SECTION F: [27]

GRAND TOTAL: [150]