education

Department: Education
PROVINCE OF KWAZULU-NATAL

GREENBURY SECONDARY SCHOOL

INFORMATION TECHNOLOGY

THIRD QUARTERLY TEST

GRADE 10

SEPTEMBER 2016

MARKS: 60

EXAMINER   :M PADAYACHEE

TIME: 1 ½ Hours

MODERATOR   :S NAIDOO

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **FIVE** questions and 5 pages including this cover page.

2. Answer ALL the questions.

3. Read ALL the questions carefully.

4. Start EACH question on a NEW page.

5. Leave a line after each answer.

6. The mark allocation generally gives an indication of the number of facts required in your answer.

7. Number the answers correctly according to the numbering system used in this question paper.

8. Write neatly and legibly.

QUESTION ONE [MATCHING]

Match the description provided in column A with the term from column B that best suits the description given. Write only the letter of the term next to the question number of the description.

COLUMN A	COLUMN B
1.1. Connects devices in a small area using Infra-Red, Bluetooth and WiFi.	A EMI
1.2. Signals travelling along wires may be intercepted by outsiders.	B Backbone
1.3. A device used to join two cables. It may also amplify or boost the signal.	C WLAN
1.4. When several LAN segments hang of one fibre optic cable it is called...	D Wiki
1.5. The layout of computers in a network is called a	E Proxy Server
1.6. Set of rules that governs the way information travels from one point to the next in a network e.g. Internet.	F RSS Feed
1.7. A unique website where users may contribute or edit articles.	G Content Aggregator
1.8. Signals from machinery may corrupt signals travelling in wires.	H WPAN
1.9. A website or software that collects specific information from other websites.	I Eavesdropping
1.10. A server maintained by an ISP or business through which all web content passes.	J Weblog
	K Router
	L Web Server
	M Repeater
	N Protocol
[10]	O Topology

SCENARIO

Your school has decided to upgrade the IT Department and at the same time purchase computers for every classroom in the school. The office area will be furnished with 10 computers for admin use and a server that will run the entire school.

The computers in the office area will be connected to an Ethernet LAN network using coaxial cables.

The computers in the IT room will be connected to each other in a Server based Star topology using Fibre optic cables. The rest of the computers in the school will be connected wirelessly.

QUESTION TWO [Networks and Communications Technologies]

Answer the following questions based on the scenario above.

2.1.   State two disadvantages of using a network.   (2)

2.2.   Explain the term Centralization and show how it is an advantage to the school.   (2)

2.3.   Discuss the two main classifications of communication media. Give examples of each to illustrate your answer.   (4)

2.4.   State one advantage and one disadvantage of using coaxial cables as opposed to UTP.   (2)

2.5.   State one advantage and one disadvantage of using fibre optic cables.   (2)

2.6.   Describe the following network classifications:
      2. 6.1. MAN   (1)
      2. 6.2. PAN   (1)
      2. 6.3. WLAN   (1)

2. 7.   What type of server would the school choose to run all departments.   (2)

2.8.   Why is it dangerous to use a Peer to Peer network in the IT room.   (1)

2.9.   Highlight the distinct differences between Bluetooth, Wi-Fi and Infra-Red by first defining it .   (3)

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QUIESTION THREE [Internet and WWW]

The office will be connected to the internet via the ISP and all other computers will receive internet access through routers connected the server in the office area.

3.1. State two services provided by an ISP.   (2)

3.2. Differentiate between a Webpage and Website.   (2)

3.3. Describe the purpose of the following websites. Give an example for each:
3.3.1. Portal   (2)
3.3.2. Weblog   (2)

3.4. Explain the difference between a browser and a search engine by using an example for each.   (4)

3.5. Explain what a RSS feed is and how it is beneficial to a user.   (3)

[15]

QUESITON FOUR   [PROGRAMMING AND ALGORITHM DESIGN]

The school requires software to manage the different departments of the school. You, as an IT learner, are required to assist in developing software to run the school.

4.1. The Sports department wants your assistance to develop an algorithm that uses the full name (Surname Firstname/s) of a participating athlete, to generate a Registration Number.
This number is used to identify the athlete by making tags with the number printed on it . This registration number contains alphanumeric characters. Your task is to examine the already written code and give input by answering the questions:

```
1. procedure TForm1.Button1Click(Sender: TObject);
2. Var fName, cde : String;
3.   len , mid , f ,s : Integer;
4. begin
5. fName := InputBox('Enter Name','Surname then firstname','');
6. len := Length(fName);
7. mid := len div 2;
8. if odd(len) then
9.    begin
10.    mid := mid + 1;
11.    cde := copy(fName,1,1) + copy(fName,mid,1) + copy(fName,len-2);
12. end
13. else
14.    cde := copy(fName,mid,1) + copy(fName,mid+1,1) + copy(fName,len-1);
15.    f := len div 10;
16.    s := len mod 10;
17.    cde := IntToStr(f) + cde + IntToStr(s);
18.    RichEdit1.Lines.Add(cde);
19. end;
```

4.1.1. Trace the code above to determine the registration number formed when the input is:
(n.b. you do not have to do a complete trace table for each input.)
a) Jonathan Francis	(2)
b) Hlakanipho Duma	(2)
c) Tony Cho	(2)

4.1.2. Describe in not more than SEVEN steps exactly what is being done with the input to obtain the desired registration code. (7)

4.1.3. You need to modify the program so that it removes spaces found in the registration number formed. Write the Delphi statements to solve this problem. After which line would you insert the new statements. (6)

4.2. The library is running a competition to promote reading. All legitimate library uses must enter their date of birth as a string in the format(YYMMDD) e.g. 810515 or 020903. From the examples above, 81 represents the year 1981 and 02 represents the year 2002. The criteria for qualification is as follows:

The age of the learner is calculated in years.
The age must then be tested to see if it is a perfect number. A perfect number is a number whose factors add up to the number itself.
Example: The factors of 6 are 1 , 2, 3 and 1+2+3 = 6.

Write an algorithm/pseudocode or a Delphi program to determine if a user qualifies or not. (11)

[30]

QUESTION FIVE [INTEGRTED SCENARIO]

The principal of your school is not very keen on the whole school being on the internet. Answer the questions below based on some of his fears.

5.1. Give two dangers of social networking in school. (2)

5.2. During transfer of files between learners and downloading from the internet, one has to be very careful of the content received and sent. List two security measures that one can employ to keep their computer protected from unwanted content. (2)

5.3. Define the terms related to Internet usage:

5.3.1. Spam (1)
5.3.2. Spyware (1)
5.3.3. Adware (1)
5.3.4. Bandwidth (1)

5.4. What do the following acronyms stand for:

5.4.1. HTTP (2)
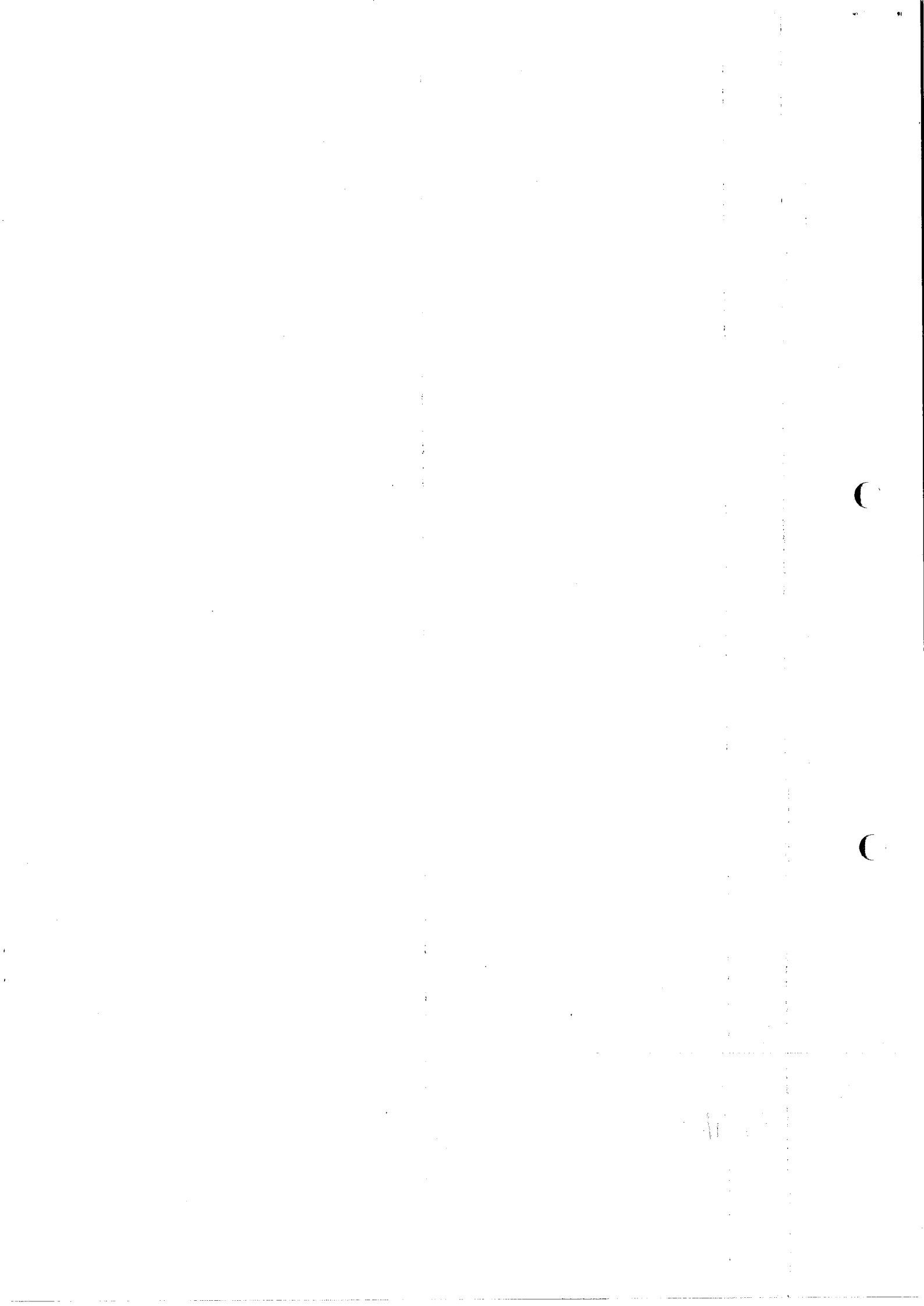5.4.2. FTP (2)
5.4.3. TCP/IP (2)

GREENBURY SECONDARY SCHOOL
DEPARTMENT OF MATHS & SCIENCES
H.O.D. MR L. PILLAY   [14]

FINAL TOTAL : 90 ÷ 3 x 2 = 60

GREENBURY SECONDARY SCHOOL
INFORMATION TECHNOLOGY
SEPTEMBER CONTROLLED TEST 2016
MARKING MEMO

QUESTION ONE

| 1.1. H | 1.2. I | 1.3. M | 1.4. B | 1.5. O |
| 1.6. N | 1.7. D | 1.8. A | 1.9. G | 1.10. E |

QUESTION TWO

2.1 – Security – networked computers are more susceptible to unauthorized access.
  - additional software is needed for security against theft of confidential data etc.
  - spread of computer viruses, malware etc.
  - networks are expensive to setup and maintain.

2.2. Centralization means that there is a central server that stores all the data that is required by all the computers in the network.
  Also individual computers in the network do not have to store any data.
  Server also shares devices such as printers amongst all computers.

2.3. Bounded media – refer to physical communication lines eg. Cables or wires that transmit data eg. UTP, STP Coax
  Unbounded – refers to media that has no covering eg. Light signals or wireless transmission e.g. radio waves, microwaves, satellite

2.4. adv – coax cables is less susceptible to attenuation because of the protective layers.
  Disadv – coax cables don't support very high transmission speeds like UTP.

2.5. adv – fast, long distance transmission
  Disadv – expensive – difficult to install, skill and expertise needed – breaks easily – cannot bend around corners

2.6.1. Metropolitan area networks – high speed LAN connectivity covering a city.

2.6.2. PAN – Personal area network – used by a person communicating between devices such as Desktops, tablets, smartphones etc.

2.6.3. WLAN – Wireless LAN connected via unbounded media such as radio waves, light, infra-red, satellite, microwaves etc.

2.7. Proxy server – all content must pass through the server. There will be control and security.

2.8. Learners will be able to view other computers in the network neighbourhood. Copying is made very easy.

2.9. Bluetooth – transmitting data over very short distances like 10m. Very fast.
  Wi-Fi – wireless fidelity is a standard for wireless transmission that allows devices to be connected to networks using radio or airwave signals.
  Infra-red transmission is when a high frequency of light is used to transmit data between two devices that support the technology.

QUESTION THREE

3.1. – internet connectivity
  - email facilities
  - Cloud storage   any other meaningful variations

3.2. A web page is any document on the internet which can be text only or graphics or video or audio or hyperlinks.

3.3.1. Portal – Provides a starting point or gateway to other websites on the internet e.g. Google

3.3.2. Weblog – is used to log online discussions, readings or post online dairies eg. Blog spot.

3.4. A browser is a program that locates and views web pages e.g. MSN Internet Explorer/Mozilla Firefox
  A search engine is a program that searches documents on web pages for specific keywords.

3.5. Really Simple Syndication – Updates from sites are fed to an e-mail account or a website as requested by a user. It allows the user to receive updates immediately as they become available.

QUESTION FOUR

4.1.1. a) 1n is6
  b) 1Hpuma5
  c) 0y ho8

4.1.2.   Step 1 – the length of the full is found and checked if it is odd or even.
  Step 2 – if odd, then the first letter, middle letter and the last 3 letters are joined
  Step 3 – if even, the 2 middle chars and the last 2 letters are joined
  Step 4 – then the digits of the length of the string is separated
  Step 5 – the first digit is joined to the front of the code and second digit is joined to the

4.1.3.   ...newCde := ''
  for i := 1 to length(cde) do
  Begin
    If not (cde[i] = ' ') then newCde := newCde + cde[i]
  End;
  Cde := newCde;