

**Annual Examinations 2017**

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**YEAR 9**

**Computing**

**TIME: 1h 30min**

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

Class: \_\_\_\_\_

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**Directions to Candidates:**

*Answer ALL questions in Section A and Section B on this paper.*

*The use of flow chart template is permitted.*

*Calculators are NOT allowed.*

**Good English and orderly presentation are important.**

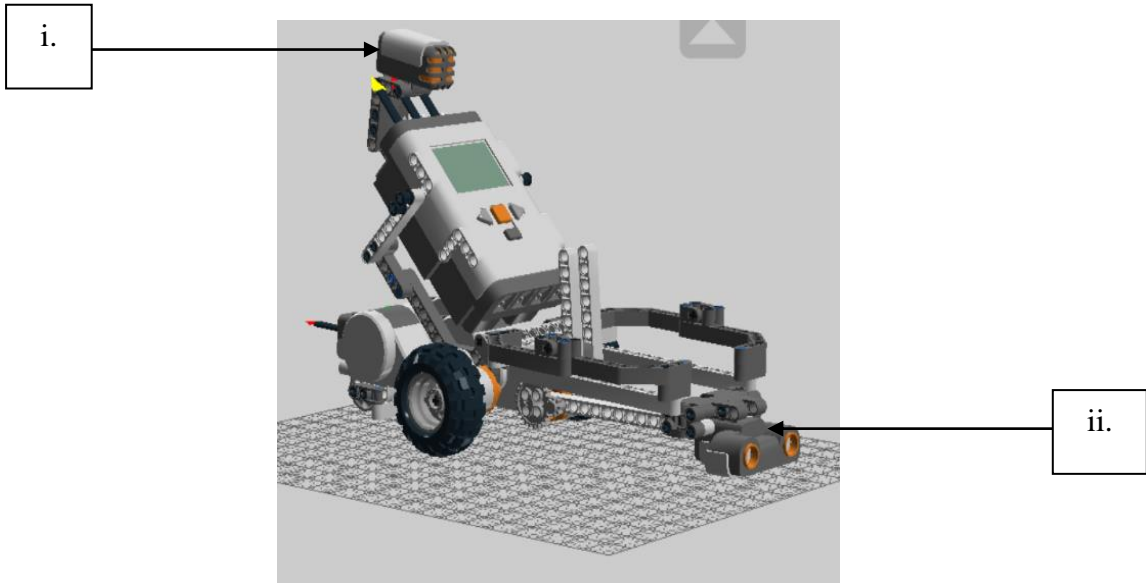
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*For office use only:*

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Paper Total	Course Work	Final Mark
Max	5	5	5	5	5	5	5	5	5	5	5	15	15	85%	15%	100%
Mark																

**Section A.**

1. This is an NXT-robotic device



a. **Name** the sensors marked i. and ii. [2]

- i. \_\_\_\_\_
- ii. \_\_\_\_\_

b. **Name** another NXT sensor which is not seen in this device. [1]

\_\_\_\_\_

c. **Name** and **clearly label** one output device you can see on the above robot. [1]

\_\_\_\_\_

d. How would you **modify** the above so that it can follow a line drawn on the ground? [1]

\_\_\_\_\_

2. Computers work with binary numbers.

a. Why do computers work with binary numbers? [1]

\_\_\_\_\_

- b. Convert: [4]  
i. 10001101 from binary to decimal.

Answer

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- ii. 35 from decimal to binary.

Answer

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- iii. 10010101 from binary to hexadecimal.

Answer

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- iv. 46 from decimal to hexadecimal.

Answer

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3. The interface of an Operating System greatly determines the user experience.

- a. What do the following stand for? [2]

i. GUI

ii. CLI

- c. Suggest one **disadvantage** of a CLI interface. [1]

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- b. Name **two** features you would expect from the user interface of a modern tablet. [2]

i. \_\_\_\_\_

ii. \_\_\_\_\_

4. A dentist keeps a database to manage his/her practice.

- a. One of the files in this database is called 'Patients'.

- i. Name **four fields** you would expect to find in file Patients [2]

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- ii. Which of the above fields would you establish as the **keyfield**? Why? [1]

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- b. Suggest **two advantages** of a relational database. [2]  
 i. \_\_\_\_\_  
 ii. \_\_\_\_\_

5. a. Name an **application** for the following input devices: [3]

i.	Graphics Tablet	
ii.	OMR	
iii.	Barcode reader	

- b. Printers may be impact or non-impact. Briefly distinguish between the two. [2]

Impact Printers	Non-Impact Printers

6. Virtual Reality seems to be gaining ground lately.

- a. Name **two** devices you associate with virtual reality. [2]  
 i. \_\_\_\_\_  
 ii. \_\_\_\_\_

- b. Briefly explain how virtual reality may enhance our experience of social media (e.g. Facebook, Instagram etc.) [1]

\_\_\_\_\_  
 \_\_\_\_\_

- c. Virtual Reality can create simulations.

- i. Give an example of the use of virtual reality simulators. [1]  
 \_\_\_\_\_
- ii. Suggest **one reason** why it may be advantageous to use simulators in the situation mentioned in (ci.) [1]  
 \_\_\_\_\_

7. A system's performance is greatly determined by how efficiently the different parts can communicate.

- a. Distinguish between **serial** and **parallel data transfer**. [1]

\_\_\_\_\_  
 \_\_\_\_\_

b. What do you understand by the term **buffering**? [2]

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c. Which has the **faster** access speed, RAM or the Hard Disk? [1]

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d. Explain why **disk caching** can improve performance. [1]

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8. The Internet is central to our daily lives.

a. Name **a feature** you expect from a modern search engine. [1]

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b. Internetworldstats.com states that in 1995 only 0.4% of the world population was using the Internet, today 50.1% are Internet users. [2]

Suggest **two** reasons why so many more people are on the Internet today.

i. \_\_\_\_\_

ii. \_\_\_\_\_

c. Most Internet users have one or more email accounts. Suggest **one** reason why email is often preferred over traditional post. [1]

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d. Many people shop online. [1]  
**Suggest and briefly explain** one way to help ensure the security of online shopping.

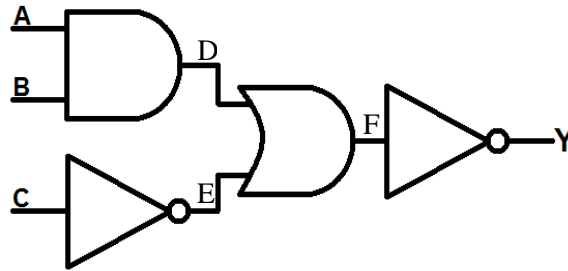
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9. **Name** the type of software you would use in the following circumstances. [5]

*The first one has been done as an example.*

a.	Software used to manipulate photos.	<i>Photo editing software</i>
b.	Software used to produce and format mainly text documents.	
c.	Software used to locate, detect and remove viruses.	
d.	Software used for organisation and analysis of data in tabular form.	
e.	Software used to improve disk access speed by arranging files on contiguous clusters.	
f.	Software used to locate and display web pages.	

10. Consider the logic circuit below:



a. Fill in with the numbers: [2]

*one, two and three*

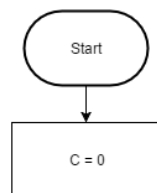
(Each number can be used more than once)

This logic circuit has \_\_\_\_\_ inputs. It has \_\_\_\_\_ AND gate/s, \_\_\_\_\_ OR gate/s and \_\_\_\_\_ NOT gate/s.

b. Complete the truth table for the above logic circuit. [3]

A	B	C	D	E	F	Y
0	0	0				0
0	0	1				1
0	1	0				0
0	1	1				1
1	0	0				0
1	0	1				1
1	1	0				0
1	1	1				0

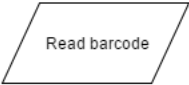
11. Draw the flowchart for an algorithm that reads in 25 marks and outputs the total number of passes and fails. The pass mark is 50. [5]



**Section B**

12. A developer is creating an app s/he is calling ‘Book Tracker’. The app will help the user keep track of the books s/he has read or is reading. The app will ask the user to scan the barcode of a book in order to create an icon for it and then the user updates it with her/his progress in the book.

- a. Put the following instructions in the correct flowchart symbol [4]  
*The first one has been done to help you*

i.	Read barcode	
ii.	Output book icon	
iii.	pagesRead = newCurrentPage - previousCurrentPage	
iv.	Start	
v.	newCurrentPage = totalPages?	

- b. Using the barcode, the system can obtain book details online like the name of the book, the author and the total number of pages (totalPages). [2]
- i. If this app were to be introduced on a smartphone. Which of the following features would you expect it to make use of? [2]

*Tick the correct answer/s*

Internet connection	
Speaker	
Voice recognition	
Camera	

- ii. Explain your answer in (i) [2]

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- iii. Draw a part flowchart that outputs ‘Book complete. Enter your review (1-5)’ when the user completes a book. [2]

- c. The user may choose the option 'Enter Book Progress'. Here s/he is asked to enter his new current page (newCurrentPage). The system then outputs his current page, how many pages he's read since he last entered her/his progress and the percentage of the book s/he's read. [4]

Draw a **part-flowchart** for the algorithm that is executed when the 'Enter Book Progress' option is chosen.

*This part-algorithm makes use of the variables previousCurrentPage and totalPages.*

- d. Suggest **one** other feature or functionality you would also include in this app. [1]
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13. This question is about storage.

a. State whether the following are **primary** or **secondary** storage devices. [4]

i.	RAM	
ii.	Hard disk	
iii.	Pen drive	
iv.	ROM	

b. What **capacity** do you expect each to have on an average PC? [3]

- i. RAM (512MB, 6GB, 256GB)
- ii. Pen drive (16MB, 16GB, 16TB)
- iii. Hard disk (32GB, 128MB, 512GB)

c. Distinguish between **RAM** and **ROM**. [2]

RAM	ROM

d. The Hard Disk has been around for many years and is often criticised as dated technology.

i. Name **one shortcoming** of the traditional hard disk. [1]

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ii. Suggest **one** reason why the hard disk survives to this day despite its shortcomings. [1]

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e. Direct and Serial Access and their uses.

A direct access storage device can be immediately made to read and write at any addressable location on it. [1]

i. Name **one advantage** of direct access.

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ii. Name a **typical use** of direct access. [1]

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iii. What is serial access? [1]

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iv. Name a possible **use** of serial access. [1]

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