## GENERAL CERTIFICATE OF EDUCATION (GCE) BOARD W

Write the following acronyms in full as used in computing:

State a difference between a star topology and a ring repology

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SDLC, RAM, CPU BROS, POST

General Certificate of Education Examination

# **COMPUTER SCIENCE 2**

0595

#### **JUNE 2021**

### ORDINARY LEVEL

Subject Title	COMPUTER SCIENCE is estimated install mode materiagh and worter self-grants. The
Paper No.	2
Subject Code No.	0595

#### **Two Hours**

Answer any FIVE questions.

All questions carry 20 marks each. For your guidance, the approximate mark for each part of a question is indicated in brackets.

You are reminded of the necessity for good English and orderly presentation in your answers.

In calculations, you are advised to show all the steps in your working, giving your answer at each stage.

Calculators are NOT allowed.

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(2 marks)

logic circuit diagram in Figure ! below.

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State a difference between impact and non-impact printer in terms of those

(iii) State what you understand by 'network topology' (iii) Draw labelled diagrams for a Star network topology and a Bus network topology. (4 marks) (iii) Draw labelled diagrams for a Star network topology and a ring topology. (2 marks) (2 marks) (2 marks) (2 marks) (2 marks) (3 marks) (4 marks) (2 marks) (4 marks) (2 marks) (4 marks) (4 marks) (5 marks) (5 marks) (6 marks) (7 marks) (7 marks) (8 marks) (8 marks) (9 marks) (9 marks) (9 marks) (1 marks)	1.	(a)	(i)	Write the following acronyms in full as used in computing: SDLC, RAM, CPU, BIOS, POST.	(5 marks)
(b) (i) State what you understand by 'network topology' (ii) Draw labelled diagrams for a Star network topology and a Bus network topology. (4 marks) (3 marks) (2 marks)  2. (a) Study the following algorithm about student test marks and answer the questions that follow.  1. Start 2. Get Test 1 and Test 2 marks 3. If (Test 1 mark < 0 OR Test 2 marks < 0) THEN 3.1.1 Display 'A mark cannot be negative' 3.1.2 Get Test 1 and Test 2 marks 3.1.3 Go back to Line 3  RND IF 3.2.1 Average = (Test 1 the Test 2)/2 3.2.2 Display Test 1, Test 2, Average 4. Stop  (i) What is the algorithm expected to compute? (ii) State the line numbers with statements that constitute a loop. (2 marks) (iii) Using symbols Tl for Test 1, T2 for Test 2, Average, represent the algorithm as a flowchart. (iv) State the expected output for the following pairs of marks inputs. Give a reason for each of your answers.  Test 1 = 15, Test 2 = 9  Test 1 = 15, Test 2 = 4  (b) Name and explain the function of three types of computer to print hard copies of her photographs. She wants to know which printer type is cheaper: Impact or non-impact. She is advised that athough impact printers are cheaper, the most important things to consider in buying a printer are print quality, and the cost and rate of consumption of Ink.  (i) Which printer is she likely to select? Justify your answer. (ii) What do you understand by the terms?  Hard copy Impact printer Non-impact printer Non-impact printer Non-impact printer Non-impact printer Print quality (6 marks)  (6 marks)  (7 marks)  (8 marks)  (9 marks)				Name three (03) computer ports and state a device that can be connected	(2 marks) (6 marks)
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(b) Consider the logic circuit diagram in Figure 1 below:  X Y P C R Figure 1  Figure 1  OCCAGO 1202 and			•		
June 2021-0595/2/C/O		(b)	Consi		
		rn Over		X P C R	
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(6 marks)

State the names of the logic gates labelled A, B and C. (i)

(3 marks)

in computer security

(ii)

Based on Figure 1, copy and complete the truth table in Figure 2.

0 0 1 0

Figure 2

(3 marks)

Write the logic equations for outputs P, Q and R in terms of X and Y.

(3 marks)

A team of system developers has identified six tasks described in the table below:

Task No.	Task Description	Task Constraints	Duration
		Cara a Al Arena	(in days)
A	System specification	None	3
В	Try software	Starts after system specification	2
С	Customise Test software	Starts after software trial	4
D	Purchase of Test hardware	Starts after system specification	3
Е	Install software	Starts after Hardware Testing	2
F	Train staff	Starts after software customisation.	1

(i) What is the use of Gantt charts in projects? (2 marks)

(ii) Copy and complete Table 2 below to produce a Gantt chart. (6 marks)

Table 2

Days										
1	2	3	4	- 5	6	7	8	9	10	11
			1147				1.		7.1	11117
				-	ηĐ			1	1 . 2	n st
						1.			11	
			1 0	11		2.5	1.4	1	1	
ģ.	11 11	111	21	Tie	Lu	1.1	1000	.e)=		7
		1 2	1 2 3	1 2 3 4	1 2 3 4 5					

- Define the terms lag time and critical path as used in project development. (iii)
- (2 marks)
- State the critical path of the project above and hence determine the project duration. (iv)
- (2 marks)
- A school's computer resource centre has stand-alone computers. The school has now decided to (b) connect the computers into a local network and to the internet.
  - (i) State what you understand by the network terms ISP and Protocol.

(2 marks)

- Give the name of a protocol that (ii)
  - governs the movement of data across the Internet.
  - is used to access pages on a web server

(2 marks)

- (iii) Briefly explain the following database concepts:
  - Primary key
  - Field
  - File
  - Query

(4 marks)

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5.	(a)	In co	mputer security,	
		(i)	What is the meaning of the term hacking?	(2 marks)
(Ediner	€.)	(ii)	State three measures that can be implemented to prevent hacking.	(3 marks)
		(iii)	List three problems that can result from unethical hacking.	(3 marks)
	413	01	all atoms in a deine the College of the control of	
	(b)		all steps in solving the following number representation problems.	(2 marks)
		(i)	Convert the hexadecimal number 2C into a binary number.	(3 marks)
		(ii)	Convert the octal number 67 into hexadecimal.	(3 marks)
		(iii)	Perform the binary addition $1011_2 + 1101_2$	(5 marks)
	(0)	(i)	State what you understand by backup and give one characteristic of a backup s	torage device
marks)	(c)	(1)	State what you understand by backup and give one characteristic of a backup s	(2 marks)
(84160	(C)	(ii)	Briefly explain the term portability in relation to:	(= =====)
(estran	1,)	(11)	- bstorage devices	
			- software	(2 marks)
			received a factor of the second second control of the second production of the second second second second second	11,1
6.	(a)	(i)	With the aid of diagrams, distinguish between serial and parallel data transmiss	ion. (5 marks)
		(ii)	Briefly describe the following modes of transmission giving an example in each	n case where they
	(5	(In day	are used: Simplex, half duplex, full duplex	(6 marks)
	(b)	(i)	Name and briefly explain the functions of the three main parts of the CPU.	(6 marks)
	(0)	(ii)	State three main stages of the machine cycle.	(3 marks)
			the first of the state of the s	
		5	the factor of the second secon	1 1
7.	(a)	—(i)	State the main technological feature that distinguished each of the following cor	nputer classifications:
		( )	- 1 <sup>st</sup> generation	•
marks)			- 2 <sup>nd</sup> generation	
(0313)612	t uj		- 3 rd generation (156) (160) (250) (271)	
			- 4 <sup>th</sup> generation	(4 marks)
		(ii)	In computer programming:	(4 marks)
		()	- What are mnemonics?	(2 marks)
			- State two disadvantages of using machine code.	(2 marks)
			- State two differences between a compiler and an interpreter.	(2 marks)
	(b)		f the health hazards of using computers is RSI.	
		(i)	Write RSI in full.  State two body parts that are likely to be affected by RSI.	(1 mark)
		(ii) (ii)	What should we do in order to prevent RSI?	(2 marks) (1 mark)
		(11)	What should we do in order to provent item.	(I mark)
	(c)	(i)	State two advantages and two disadvantages of using electronic mail as a means	of communication.
				(4 marks)
(estran	(2 -	(ii)	State a difference between intranet and extranet.	(2 marks)
narkat		noil	Supplied to property at the greed above and hence determine the project data	
1			and competed to a new committee over radone computers. The school has now de-	
		0. 44	at the currence, it is a total to the internet and its attention	
marks)	(2)		State one continued as and or the network terms ISP and Protocol	
1			Coverable name of a presenced that	
			- an vernally appropriate of data scale is the Internet.	
(zWiec	(2 n		A like to an action by a some water server	
			1-9	
			Brivile explain the following database concepts:	
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			500	

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