

0595/2/2022

Computer Science O/L

SOUTH WEST REGIONAL MOCK EXAMINATION GENERAL EDUCATION

THE TEACHERS' RESOURCE UNIT (TRU)

Cellule d'appui à l'action Pédagogique

IN COLLABORATION WITH

En collaboration avec

THE REGIONAL INSPECTORATES OF PEDAGOGY AND

THE SUBJECT TEACHERS' ASSOCIATIONS (STA)

THURSDAY, 31/03/2022

ORDINARY LEVEL

Subject Title	COMPUTER SCIENCE
Paper Number	Paper 2
Subject Code Number	0595

TWO HOURS

INSTRUCTIONS TO CANDIDATES:

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

1. a) i) Define the term *computer generation*. (2 marks)
- ii) Complete the table below, which gives computer generations and their main technology.

Computer generation	Main technology
	Microprocessors
2	
	Integrated circuits
5	

(4 marks)

- b) Consider the following Boolean equation $Z = \overline{A} \cdot B + A \cdot \overline{B}$

- i) Copy and complete the table below that shows the type and number of logic gates in the equation.

Logic gate	Number
AND	
NOT	
OR	

(3 marks)

- ii) Copy and complete the truth table below for the output Z

(4 marks)

A	B	\overline{A}	\overline{B}	$\overline{A} \cdot B$	$A \cdot \overline{B}$	Z
0	0					
0	1					
1	0					
1	1					

- iii) Draw the logic circuit for Z

(3marks)

- c) Copy and fill in the table below by matching correctly the following problems in a computer system to possible faults:

Problems: *Wrong time, beeps when switched on, no display, Printer connected cannot print*

(4marks)

Fault	Problem
Driver not installed	
RAM chip not well fitted	
CMOS battery faulty	
Video cable not connected	

2. a) A company has branches in several towns and needs to connect them for easy sharing of information and proper management. They may use either an intranet or an extranet.

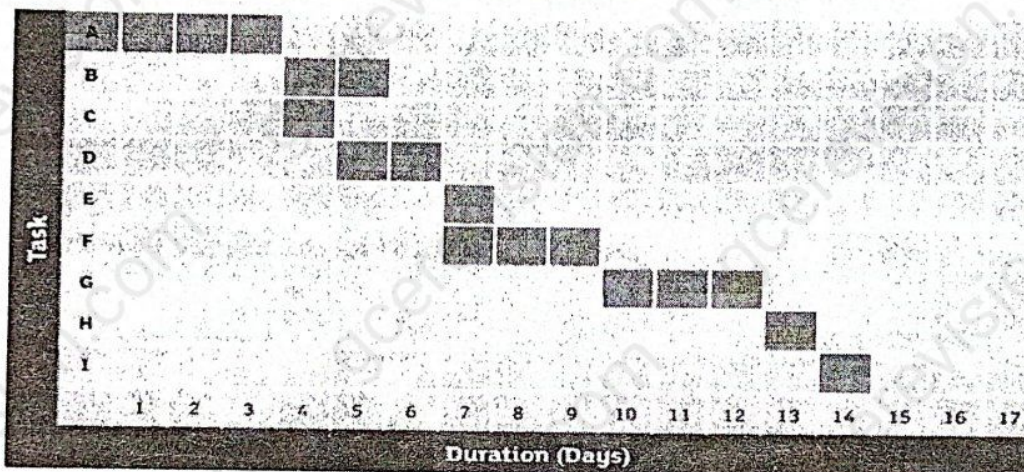
- i) State any three network devices that will be required for this connection. (3 marks)
- ii) Briefly describe the role of each of the devices mentioned above. (3 marks)
- iii) State, with a reason, the type of network you would advice the company to use. (2 marks)
- iv) Briefly describe two other ways that the company will benefit from such connection. (2 marks)

For each item state, with reasons, one validation and one verification check that should be used.

(8 marks)

5. a) All processing in a computer system takes place in the CPU, following a machine cycle.
- List the main components of the CPU. (3 marks)
 - Briefly describe the role of each of the components above. (3 marks)
 - The CPU's overall performance can be affected by many different factors of which the most important are **clock speed**, **cache size** and the **number of cores**. Briefly explain how each of the factor influences the performance of the CPU (6 marks)
- b) Information Systems are widely used in various sectors of the society.
- What is an information system? (2 marks)
 - List six (6) components of a computerized information system (4 marks)
- c) What do you understand by the term *cloud computing*? (2 marks)

6. a) Study the Gantt chart below and answer the questions that follow:



- Define the following terms, using examples from the Gantt chart (8 marks)
 - Predecessor task*
 - Slack time*
 - Critical path*
 - Critical task*
 - Determine the duration of the project. (2 marks)
- b) Briefly describe any three aspects that are handled by ergonomics. (6 marks)
- c) Give the full meaning of the following acronyms (4 marks)
- URL
 - HTTP
 - ISP
 - FTP

7. Consider the following tables that represent an extract from a student database :

Student Table

StudentID	Name	Sex	Date of Birth	ClassID
S01	LUM	F	12/02/95	F1
S05	EPOSI	F	09/10/88	F4
S07	AMBE	M	16/01/89	F4
S08	JOEL	M	02/03/94	F2
S09	LUCY	F	12/02/95	F3
S10	EPOSI	F	14/04/98	F2

Class Table

ClassId	Has_Smartboard	Size
F1	Yes	60
F2	No	80
F3	No	50
F4	Yes	60

- a) State the number of (i) records in **Student Table** (ii) fields in **Class Table** (2 marks)
- b) (i) Give the name of the field that would be used for the primary key in **Student Table**. Give a reason for your choice. (2 marks)
- (ii) Give the name of the field that represents a foreign key in **Student Table**. Give a reason for your choice. (2 marks)
- (iii) Copy and complete the table to identify the **most appropriate** data type for each field based on the data shown in the database tables. (5 marks)

Field name	Sex	Date of birth	Name	Has_Smartboard	Size
<i>Data type</i>					

- c) AshPeri is worried about the security issues that can arise when working with computers. Some of the security risk include **Spyware; Phishing; Hacking**.
- i) Briefly describe the above **three** security risks (3 marks)
- ii) Identify one possible effect of each security risk (3 marks)
- iii) Give one method that can be used to prevent each security risk. (3 marks)
- (Each method must be different)