

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

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## 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.

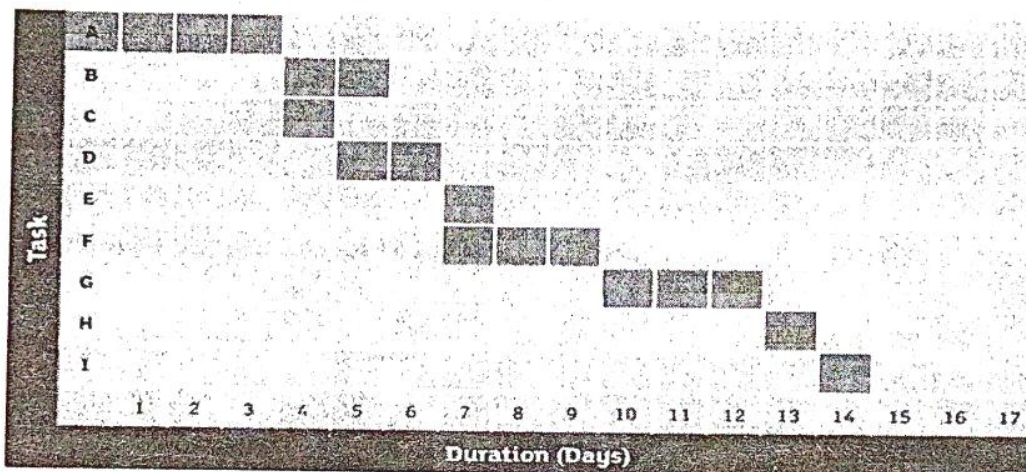
- i) State any three network devices that will be required for this connection. (3 marks)
- ii) Briefly describe the role of each of the devices mentioned above. (3 marks)
- iii) State, with a reason, the type of network you would advice the company to use. (2 marks)
- iv) Briefly describe two other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



(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
- URL
  - HTTP
  - ISP
  - FTP
- (4 marks)

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
Data type					

- 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. (Each method must be different) (3 marks)