

1. The internet can be defined as:
- Network of computer networks that share resources
 - Interconnection of computers that share resources across regions
 - Worldwide network of computers that share resources
 - World Wide Web.
-
2. Which of the following is true about multitasking
- Several CPUs are needed to process tasks at a time.
 - A CPU can process several tasks at a time.
 - Several users can access the same task at a time.
 - Several CPU's with each processing a separate task.
-
3. The performance of a network does NOT depend on the:
- Number of users.
 - Capabilities of the connected hardware.
 - Bandwidth.
 - Distance between connecting devices.
-
4. The Basic device that act as a central controller to all the computers on a school network is called:
- Modem
 - Switch
 - Server
 - RJ45
-
5. The number of separate cables needed in a mesh topology of FIVE computers is:
- 10
 - 5
 - 4
 - 8
-
6. Which of the following cables is the fastest channel of communication in computer networks?
- Fibre optic
 - Coaxial cable.
 - Unshielded twisted pair.
 - Shielded twisted pair.
-
7. The correct spreadsheet formula for the average of two cells A1 and A2 where A1 is possibly blank is:
- $=(A1:A2)/2$
 - $=average(A1+A2)$
 - $=AVERAGE((A1+A2)/2)$
 - $=average(A1, A2)$
-
8. Which of the following is NOT possible in a word processing software?
- Add values in a table.
 - Merge cells in a table.
 - Wrap text in a table.
 - Link cells in different tables.
-
9. The application software that is best used to project reports to an audience using a digital projector is:
- Word-processing software.
 - Scanner software.
 - Presentation software.
 - Spreadsheet software.
-
10. Which of the following is AGAINST copyright law for acquired software?
- Making a backup copy of software.
 - Installing the software in unlimited number of computers.
 - Using the software in a country different to that in which it was bought.
 - Using the software for unlimited period of time.
-
11. A method to reduce piracy of software supplied on CDs is:
- Use of serial numbers.
 - Write protect CDs.
 - Production of tutorials.
 - Identifying end user.
-
12. The collection of principles that judge whether people's actions are correct or wrong is known as:
- Legislation.
 - Data Protection Act.
 - Ergonomics.
 - Ethics.
-
13. A UPS is a device that CANNOT be used to:
- Provide power to a computer when electricity supply fails
 - Stop excess flow of electricity into a computer.
 - Stabilises electricity flow into a computer.
 - Automatically stop electricity flow into a computer.
-
14. A tool that can recognize and execute a sequence of instructions written in a programming language is:
- Compiler.
 - Translator.
 - Assembler.
 - Interpreter.
-

15. In writing codes in a programming language, one must follow the rules of the language called
 A Coding
 B Protocol
 C Syntax
 D Semantics
-
16. An error in a program code is also known as a(n):
 A Syntax.
 B Interrupt.
 C Codec.
 D Bug.
-
17. At which of the following stages will the programmer concentrate on devising a test plan?
 A Requirement analysis.
 B Procedural implementation.
 C Design.
 D Investigation.
-
18. How many CDs of 700MB capacity can contain 100 newsletters from a digital library assuming that the average number of characters to each newsletter is 1000?
 A 10
 B 11
 C 1
 D 70
-
19. A functional requirements report indicates the work done in the phase
 A development
 B investigation
 C design
 D analysis
-
20. The bit pattern of the digit 0 in ASCII code is 00110000. What would be the bit pattern for digit 2 assuming that the representation of adjacent digits corresponds to adjacent binary numbers?
 A 00111000
 B 00110100
 C 00110001
 D 00110010
-
21. Which of the following is a recommended practice in writing good algorithms?
 A It must be written in English.
 B It must not be too long; at most 20 lines.
 C Keywords must be written in capital letters.
 D It must have finite number of steps.
-
22. One characteristic of algorithms is that:
 A They can easily be executed by the computer.
 B They can easily be executed by a compiler
 C They can run on most computers.
 D Non-programmers can understand it.
-
23. In low level programming languages,
 A codes are written in a form that the computer can easily execute.
 B Programmers easily write codes using them.
 C Programs are cheaper to design.
 D Codes be used to write programs for difficult tasks.
-
24. One advantage of high level programming language over low level programming languages is:
 A It is written in a language easily understood by programmers.
 B It is cheaper to get associated software.
 C Its software is more common in the software market.
 D It's less bulky in relation to memory space
-
25. In Object Oriented Programming, programmers are able to:
 A Program object that serve human beings.
 B Creates relationships between objects.
 C Describe behavior of objects in terms of their characteristics.
 D Represent program codes as object.
-
26. The machine cycle includes Fetch, Decode, _____, and Store
 A Execute
 B Coding
 C Process
 D Run
-
27. Sequential files may be accessed by a :
 A A key field
 B Loop
 C Memory registers.
 D Pointer.
-
28. In relation to database, a file is defined as a collection of:
 A Similar items.
 B Related records.
 C Related fields.
 D Tables.
-

29. A file organization (and relevant access method) is most dependent on the:
- Ordering of records in the file.
 - Layout of the records in the file.
 - Characteristics of the storage medium.
 - Components of records in the file.
-
30. One advantage of hashed organization of files is that it:
- Is faster to access files by considering their frequency of usage
 - Permits direct access of records that are placed randomly.
 - Discourages file defragmentation for easy access.
 - Compresses records and thus uses less storage.
-
31. A flat file database is different from a relational database in that:
- Its tables have more fields
 - It is made up of one table.
 - It eliminates redundancy
 - It contains a unique primary key.
-
32. One possible way to create a table using a DBMS
- Design view.
 - Datasheet view.
 - Table view.
 - Query view.
-
33. Which of the following database object is used to enter data into a relation?
- Queries
 - Reports
 - Forms
 - Relationships
-
34. An information system that does NOT directly assist in the management of an organization is:
- Management Information System
 - Geographic Information System
 - Health Information System
 - Decision Support System
-
35. A field that can be used to sort data in a table is called a(n):
- Primary key.
 - Foreign key.
 - Secondary key.
 - Identity key.
-
36. Which of the following is true about database tables?
- The number of tables in a database must be less than six
 - The number of fields must exceed two.
 - The order of the fields is not important.

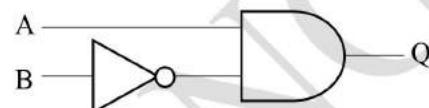
37. Consider the following logic arithmetic for AND gate, where:

$$\begin{aligned} A &= 0 \text{ AND } 0 \\ B &= 1 \text{ AND } 0 \\ C &= 1 \text{ AND } 1 \end{aligned}$$

The truth values A, B and C is

- $A=0, B=1, C=1$
- $A=1, B=0, C=0$
- $A=0, B=0, C=1$
- $A=0, B=1, C=0$

38. The output Q in the circuit below is equal to:



$$\begin{aligned} A &= \overline{A \cdot B} \\ B &= \bar{A} + B \\ C &= \bar{B} \cdot A \\ D &= \bar{B} + A \end{aligned}$$

39. Which of the following is an activity of system implementation?

- Decide on which hardware to use.
- Writing algorithms.
- Training of users.
- Describing output formats.

40. Which of the following defines pilot implementation of a system in an organization?
- Abandon the old system and switch to new one
 - Use the old system alongside the new one
 - Use the new system only in a department then later extend to others.
 - Use just part of the system processes then later use the new.

41. One detail found in the user's guide of a system is:
- Users 'job description.
 - Upgrade possibilities.
 - Algorithms
 - Codes of various tasks.

42. The number 4683 is not a possible number in octal because it:
- Neither contains binary digits.
 - Contains only four digits.
 - Contains the digit 8.
 - Is not divisible by 8.

43. One way to avoid repetitive stress injury is to:
- A Use LCD monitors.
 - B Avoid eye contact with the monitor.
 - C Use level tables.
 - D Use adjustable chair.
-
44. Different programmers can write program modules in different platforms using high-level non procedural languages. Which generation of programming languages could be most easily used to integrate their different modules?
- A First
 - B Second
 - C Third
 - D Fourth
-
45. Which of the following determines whether a project should be carried out?
- A Identification.
 - B Feasibility assessment.
 - C Program specification.
 - D System evaluation.
-
46. In the analysis phase, the development of which of the following clearly states the goals and objectives of the project.
- A Flowchart
 - B Program specification
 - C Design
 - D Documentation
-
47. What would be the main advantage of using a prototyping in the design phase of an information system? It
- A Provides enough evidence of functionality.
 - B Is the final design of the information system.
 - C Helps automate the task of documentation.
 - D Helps to train the users before conversion
-
48. The organized process or set of steps that needs to be followed to build an ICT system is known as:
- A Information System Analysis.
 - B Project Management.
 - C System development life cycle.
 - D Software development life cycle.
-
49. A manager who needs a type of information system that would enable the importance of very reliable and recent data from a database should acquire:
- A A management information system.
 - B Real time processing.
 - C An executive information system.
 - D A transaction processing system.
-
50. After a system has been successfully designed, the end users must evaluate to see that it meets their needs and functions correctly. This type of testing is
- A Unit testing
 - B Program testing
 - C Acceptance testing
 - D Module testing

STOP

NOW GO BACK AND CHECK YOUR WORK

- 1.(i) Research work on automatic speech recognition (ASR) has intensified since the beginning of the 21st Century. Emerging technologies are on the way to increase the quality of interaction between computer users and the machine.
- (a) What is automatic speech recognition? (2 marks)
- (b) State two advantages and one limitation of speech recognition. (3 marks)
- (ii) Explain briefly the use of the following input technologies and cite a situation in which each can be useful:
- (a) Magnetic strip. (2 marks)
- (b) Magnetic ink character recognition. (2 marks)
- (c) Touchpad. (2 marks)
- (iii) (a) Differentiate between data validation and data verification. (2 marks)
- (b) Give the meaning of ***proof reading*** and ***double entry***. (2 marks)
- (c) Describe a situation or application that uses the double entry method. (2 marks)
-
- 2.(i) Give the full meaning of the following and state an application for each:
- (a) LIFO (2 marks)
- (b) FIFO (2 marks)
- (ii) (a) What is a source code ? (2 marks)
- (b) Give a reason why some programming languages are classified as high level programming languages. (1 mark)
- (c) State two ways in which you can represent an algorithm. (2 marks)
- (d) Describe one way in which algorithms can be compared. (1 mark)
- (iii) (a) What is artificial intelligence? Explain one application of artificial intelligence in industry. (3 marks)
- (b) What is Computer Aided Design? Name one professional who uses CAD and describe to what extent it is useful to him. (4 marks)
-
- 3.(i) Define the following terms:
- (a) Relational database (2 marks)
- (b) Database Management Systems (2 marks)
- (c) Redundancy in databases. (2 marks)
- (ii) Give three advantages and two disadvantages of a DBMS. (5 marks)
- (iii) Propose two domains of application for each of the following systems:
- (a) Geographic Information System. (2 marks)
- (b) Reservation system. (2 marks)
- (c) Expert system. (2 marks)
-
- 4.(i) Give the main function of the following hardware in a computer system
- (a) Video card (2 marks)
- (b) RAM chip (2 marks)
- (c) Ethernet card (2 marks)
- (ii) Define the following terms:
- (a) Simulation (2 marks)
- (b) Videoconferencing (2 marks)
- (c) File compression (2 marks)
- (iii) (a) What is ergonomics? Give two advices you will give to a secretary typist who is suffering from back pain and eye strain. (3 marks)
- (b) Give two advantages of LCD monitors over CRT monitors. (2 marks)

- 5.(i) A machine cycle consists of a series of operations performed to run a single program instruction fetch, decode and execute the instruction, and return the result to the RAM if necessary.
- (a) What is the meaning of RAM? Give the main function of the RAM. **(3 marks)**
- (b) Explain the process of fetch, decode and execute in the machine cycle. **(3 marks)**
- (ii) Describe the following:
- (a) Word size
(b) Byte
(c) ASCII code **(6 marks)**
- (iii) Name five components of the CPU and briefly describe the function of each. **(5 marks)**
-

- 6.(i) Define the following web terminologies and give an example of each.
- (a) Web page.
(b) Search engine.
(c) Browser. **(6 marks)**
- (ii) (a) Give three impacts of computer virus to educational institutions.
(b) Suggest two measures that can be taken by a school secretary to protect the computer from being infected by computer viruses.
(c) Give two effects of a virus to a computer system. **(7 marks)**
- (iii) (a) What do you understand by the term multimedia?
(b) Give three ways in which the installation of multimedia centers in schools in Cameroon would affect both teachers and students? **(1 mark)**
(3 marks)
-

- 7.(i) Define the following terms:
- (a) Computer ethics
(b) Hacking
(c) Copyright **(3 marks)**
- (ii) Give the difference between:
- (a) Copy-Paste action and Cut-Paste action.
(b) Word Art and Clipart **(4 marks)**
- (iii) Complete the table below by stating the most appropriate type of software or program that can be used for the stated tasks.

	Task	Type of software
a	Conversion of data to charts	
b	Calculation of areas of a figure in which the user supplies the required inputs and the software generates the output.	
c	To present information on the activities of an organization to the board of directors during seminar.	
d	Create, manipulate and format text, images and tables for publicity.	

(4 marks)

- (iv) Give the difference between:
- (a) Parallel and serial.
(b) Simplex and full-duplex.
(c) Synchronous and asynchronous. **(6 marks)**
-

- 8.(i) (a) What is Pseudocode?
Give importance of Pseudocode in programming. (3 marks)
(b) State three qualities of a good algorithm. (3 marks)

- (ii) (a) What is fault tolerance? (2 marks)
(b) What device can be used to amplify network signals to cover a long distance? (1 mark)
(c) Complete the table below by giving the reason for each of the aspects of network topology.

	Aspect	Reason
1	Signal collision is not common in a ring.	
2	Mesh offers the greatest fault tolerance.	
3	Security is more assured in a star than in a bus.	
4	A ring offers less fault tolerance than star.	

(4 marks)

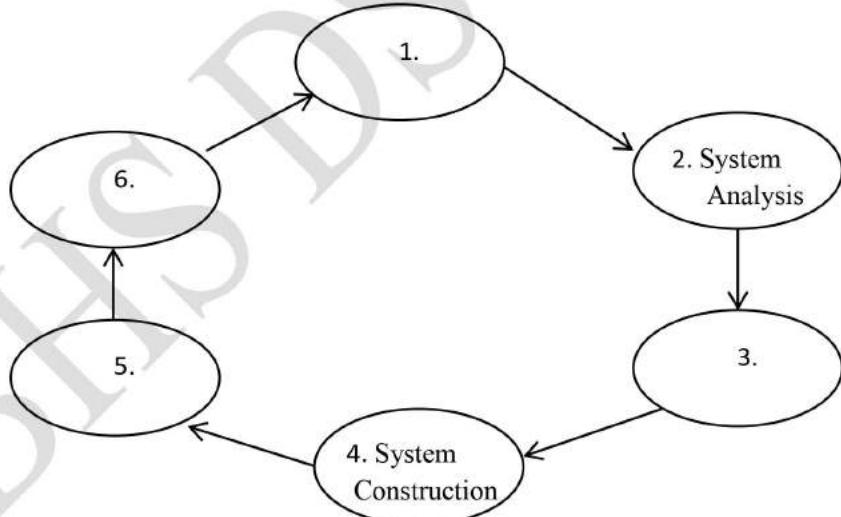
- (iii) Give the full meaning of each of the following file formats and state the purposes for which they are used

- (a) .PDF
(b) .MPEG (4 marks)

- 9.(i) Evaluate the following, where binary numbers are absolute values:

- (a) 34_{10} to binary
(b) $10110101_2 - 11111_2$
(c) $101101_2 \times 101_2$ (5 marks)

- (ii) .



- (a) Sketch the diagram above and insert the missing phases. (4 marks)
(b) In the analysis phase of the SDLC, different tools are available to assist the system analyst and end users. Name and explain any two of the tools used. (4 marks)
- (iii) Give two reasons why:
(a) the operating system is often installed before any other software.
(b) People prefer working with graphical user interface than command line interface. (4 marks)

ANSWER ALL QUESTIONS IN THE TASKS

ENTER ANY FORMULA TYPED IN THE SPREADSHEET IN YOUR ANSWER BOOKLET WHEN ASKED.

The task below is based on the spreadsheet with the file name STOCK-CONTROL, found in your candidate folder. The software is designed to control stock in a mini whole sale shop of six items.

The field names in the stock sheet contain comments that define their contents.

TASK A (32 MARKS)

Open the **Stock Control** file found in the candidate folder and answer the following questions

1. Insert borders in the area A1:19. (1 mark)
2. Merge the cells in the range A9:B9 and write **TOTAL** in the merge cells. (1 mark)
3. Insert a formula in cell C9 that calculates the total number of stock items in the shop. Copy the formula in C9 through H9. (2 marks)
4. Change the font of the row containing the totals to bold with font size 14. (1 mark)
5. Select the cell range D3:F8 and set the format to a thousand separator. (1 mark)
6. Click the SALES sheet to continue with the next activities.
Format the cells for the date from A4 to A15 to the date format dd-Month-yy (e.g. 10-Jun-13). (2 marks)
7. Copy the sample sales for rice in the SAMPLE sheet and paste in the appropriate location in the sales for rice in the SALES sheet. Use an appropriate paste option so that the date appears in the format selected in (6) above and adjust the column width for **Date**. (1 mark)
8. Insert a formula to calculate the total for each sale made in column **D**. (1 mark)

The table below shows the sales made between 12-Feb-13 to 17-Feb-13

Date	Item	No.sold	Unit price
12/2/13	Milk	1	11100
13/2/13	Soap	2	14300
13/2/13	Milk	4	14200
13/2/13	Milk	4	12400
13/2/12	Flour	2	19400
13/2/13	Tomatoes	2	7100
14/2/12	Flour	3	19900
14/2/13	Milk	2	12000
15/2/12	Tomatoes	3	8300
15/2/12	Rice	2	18200
16/2/13	Rice	1	17600
17/2/13	Sugar	2	6600

9. Enter the data above in the appropriate table in the SALES sheet. (3 marks)
10. Insert a formula to calculate the total for each sale made in the respective tables as for the rice table. (2 marks)
11. Insert a formula that displays a message in the **Comment** column; any of the options: *Low Sale*, *Good sale* or *High Sale*, by considering the unit price as follows:

- If unit price lower than **Min Price**, then comment is “Low Sale”.
- If unit price is greater than **Min Price** but lower than **Max price** then comment is “Good Sales”.
- If unit price is greater than the **Max Price** then comment is “High Sale”.

Insert the absolute value sign where necessary in your formula for the first rice sale and copy the formula through other sales of rice. **(4 marks)**

12. Copy the comment formula in the rice table to the tables of the other items; making adjustments within the formula where necessary. **(2 marks)**
13. Type a formula in the **No Sold** column in the stock sheet that links the respective cells to the number sold for each item found in the SALES sheet. **(2 marks)**
14. Type a formula in the Stock sheet that calculates the stock level and the % Stock Level in column H and I respectively use the formulae:
 - $STOCK\ LEVEL = INITIAL\ STOCK - NO\ Sold$.
 - $\% \text{Stock Level} = \frac{STOCK\ LEVEL}{INITIAL\ STOCK} * 100$ (Adjust values to display to 1 decimal place)**(3 marks)**
15. Create a new field at the right end of the stock table named COMMENT that displays a warning message “**REFILL**” if the % Stock Level for an item is less than or equal to 50% and “**OK**” otherwise. **(2 marks)**
16. Type in D13 in the **Stock** sheet a formula that calculates the total expenditure for all the six items by taking the sum of all the products of the INITIAL STOCK and the UNIT COST PRICE. **(2 marks)**
17. Type in D14 in the **Stock** sheet a formula that calculates the total sales amount by adding all the total sales of the different items in the SALES tables.
Also type in D15 a formula that calculates stock balance, being the difference between the TOTAL EXPENDITURE and TOTAL INCOME. **(2 marks)**

TASK B (6 marks)

In the design of the above software.

- (a) State two activities you would have carried out during the investigation phase of the software development cycle. **(2 marks)**
- (b) State two weaknesses of the software developed and, for each, suggest a possible solution. **(4 marks)**

TASK C (17 marks)

This task is based on databases and uses a database called SchoolDatabase

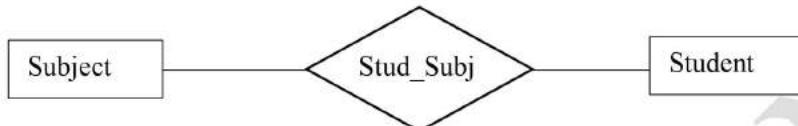
1. Open the SchoolDatabase found in the candidate folder. **(1 mark)**
2. Open the subject table and state the data type of each field. **(2 marks)**
3. Add the following information in the Stud_Subj table.

St_ID	Sub_ID	Grade
13	ICT101	D
14	MAT101	C
12	FRE101	D
16	ENG101	B
22	ICT101	A
20	CSC101	E

Print the Stud_Subj table when done.

(2 marks)

4. Create a relation for the three table using the E-R diagram below



Explain your answer

5. Create a query to generate the list of students who score grade A or B. Your query should display the name of student, and the subject ID and name for which they scored A or B grade. Save the query as gradeAB.

(3 marks)

6. Create a query that displays the grades for the subjects taken by student A. Rocky. Save the query as RockSub then Print Rocksub.

(2 marks)

7. Create a form to enter data into the subject table and save the form as Subject. Print a page of the form. Write in your answer booklet the procedure you took to create the form.

(4 marks)

Go back and check your work. Make sure the following are printed:

- -The Stock sheet.
- -The first page of the SALES sheet.

1. The computer that allows more than one user to work at the same time is known as a
 E mainframe computer
 F embedded computer
 G micro computer
 H multiprogrammed computer
-
2. _____ is the technological basis on which the Third Generation computers were built
 E transistor
 F Vacuum tube
 G microprocessor
 H integrated circuit
-
3. A computer that exists in a system that cannot be reprogrammed by the user is
 E tablet computer system
 F embedded system
 G handheld computer system
 H system access control
-
4. The De Morgan law for the logic AND states that $\bar{A} \cdot \bar{B} =$
 E $\bar{A} + \bar{B}$
 F $A + \bar{B}$
 G $\bar{A} + B$
 H $\bar{A} + \bar{B}$
-
5. Which of the following is NOT a function of an operating system?
 E Providing user interface
 F Memory management
 G Executing program instructions
 H System access control
-
6. A chip in computer that contains essential information in a computer such as the date and time is
 E CMOS
 F BIOS
 G RAM
 H ROM
-
7. What file format would you use for publishing and distributing electronic text documents?
 E .mpeg
 F .jpeg
 G .pdf
 H .wav
-
8. A document created in an application package which could be used over and over by many users for the same purposes is known as:
 E Wizard
 F Template
 G Draft
 H Form
-
9. The check by computers to ensure that data entered into a database is sensible is known as:
 E integrity check
 F verification
 G validation
 H redundancy check
-
10. Which of the following application packages would be the most appropriate for representing information on charts and performing calculations?
 E Presentation packages
 F Database packages
 G Word processing packages
 H Spreadsheet packages
-
11. Which of the following is an advantage of a Vector-based graphics format?
 E It allows graphs to be placed in a vector form
 F It is device independent
 G It allows vectors to be used to draw graphs
 H It tolerates straight line graphs
-
12. The act of gaining unauthorized access by use of network to people's computer is known as
 E hacking
 F surfing
 G scamming
 H spoofing
-
13. Software designed to meet the needs of a particular organization is called
 E generic
 F surfing
 G integrated
 H Bespoke
-
14. One way to limit piracy of intellectual property is by
 E use of antivirus software
 F using encryption
 G enforcing legislation
 H use of firewall
-
15. An information system that provides periodic and predetermined reports that summarizes information only is called
 E MIS
 F GIS
 G HIS
 H DDS
-

16. An information system consists of
 E Software and hardware
 F People, software and hardware
 G People, data, machine and procedures
 H People, data, software and procedures
17. An expert system that is used in organization to manage daily business activities can also be termed as a
 E GIS
 F DSS
 G MIS
 H TPS
-
18. A linear list whose elements are inserted and deleted in a last-in-first-out order is a
 E Stack
 F Queue
 G hash table
 H binary tree
-
19. Which of the following is in the right order of time measurement?
 E Picoseconds-nanoseconds-microseconds
 F Nanoseconds-picoseconds-microseconds
 G Microseconds-nanoseconds-picoseconds
 H Microseconds-nanoseconds-picoseconds
-
20. Which of the following is NOT true about arrays?
 E Access elements by an index
 F Sort the elements
 G Can hold element of the same type
 H Can hold element of different types
-
21. How many KB (as used in everyday speaking) are in 1.5 GB?
 E 1500
 F 15000
 G 150000
 H 1500000
-
22. The technique of developing a system model and testing to make adjustments until an acceptable product is realized is known as
 E Try-by-error
 F flow charting
 G waterfall model
 H Prototyping
-
23. Some programming languages are said to be high level because
 E code are written in a form that the computer can easily execute
 F Programmers easily write codes using them
 G they are cheaper to design
 H they cannot be used to write programs for difficult tasks
-
24. A module in a system is said to be reusable if the module is
 E independent of the system
 F depends only on a few modules in the system
 G iteratively defined
 H recursive
25. A data communication method in which bits are transmitted through separate channels simultaneously is termed
 E Parallel data transmission
 F Serial data transmission
 G Simplex data transmission
 H Asynchronous transmission
-
26. Devices in a network indicate their connectivity during data transmission by
 E buffering
 F handshaking
 G signaling
 H interrupts
-
27. Which is a data transmission method by which signals from several lines are made to be transmitted through a single line?
 E Serial transmission
 F Broadband transmission
 G Switching
 H Multiplexing
-
28. The main role of a repeater in a network is
 E Separate a single stream of signals into separate streams
 F Select the best path for network packets
 G Boosts the strength of signals to cover long distances
 H Receive sends signals only to requesting computers in a network
-
29. Controls the flow of each character in asynchronous transmission mode.
 E Error control bits
 F Start-stop bits
 G Parity bits
 H Check-sum bits
-
30. The cheapest means by which a group of students found in different geographic locations can exchange views through the internet is by
 E email
 F Forum
 G videoconference
 H Skype
-

31. The topology with the greatest fault tolerance is
 E Mesh
 F LAN
 G Ring
 H bus
-
32. A device that connects computers and forwards data packets from one network segment to the other of different platforms is a
 E Hub
 F Bridge
 G Switch
 H Router
-
33. The bandwidth of Internet connection in a public cyber café suddenly becomes congested. One possible reason is
 E Poor weather
 F number of users
 G virus activity
 H poor network design
-
34. If a laptop is to have Internet connection through a LAN with Internet facilities then
 E the laptop needs an IP address
 F the user must be given a password
 G the service provider must be contacted
 H the modem must be used to connect the laptop to the LAN.
-
35. The protocol used to receive electronic mail over the Internet is
 E TCP/IP
 F SMTP
 G FTP
 H VOIP
-
36. The buying and selling of stock over the Internet is called
 E e-commerce
 F e-shopping
 G e-banking
 H e-banking
-
37. Which is the correct order of the stages of the SDLC?
 E Analysis, implementation, design, maintenance
 F Design, analysis, support, implementation
 G Analysis, design, implementation, support
 H Coding, support, evaluation, maintenance
-
38. The phase in a system development life cycle where requirements are first identified is
 E feasibility studies phase
 F analysis phase
 G implementation phase
 H design phase
-
39. A practice that enhances understanding of algorithms is
 E use of capital letters
 F use of good language
 G use of programming words
 H use of comments
-
40. Algorithms are different from codes in that
 E They can be easily executed by the computer
 F They are easily understood by non-programmers
 G They are shorter than codes
 H They have a style of presentation
-
41. Which of the following control structure is NOT a loop structure?
 E IF-THEN statement
 F REPEAT statement
 G WHILE statement
 H FOR statement
-
42.
Start
 Get an integer, x
 Get another integer, y
 If x < y then
 Take y to be y-2
 Else
 Take x to be Y*2
 EndIf
 Print x,y
Stop
- If x=3 and y=7 then the output is
 E 14, 5
 F 14, 1
 G 3, 5
 H 3, 7
-
43. An example of an Object Oriented programming language is
 E Turbo Pascal
 F C#
 G Java
 H Fortran
-
44. In programming, what specifies the order in which a computer will execute each line of software code?
 E Switch statement
 F Control structure
 G Conditional statement
 H Syntax structure

45. Which of the following is true about Functional programming?
E It is used to calculate using mathematical function
F It focuses on what has to be done rather than one how it is done
G It is used in programming functions
H Its codes are made up of mostly functions
-
46. The structure approach of writing programs using routines is beneficial in that
E it makes programs to be easily understood by non-programmers
F routines can be tested in isolation before being added to larger programs
G it generates output after each statement for easy understanding
H programs can run even when there are errors
-
47. Which of the following may not be helpful to a project manager in the execution of a project?
E PERT chart
F Scheduling software
G Data flow diagrams
H Gantt chart
-
48. Some tasks can be extended for a number of days without affecting the finished day of a project. Such a task is known as
E Slack task
F floating task
G critical task
H extended task
-
49. In html, the tags are used to create
E ordered list
F bulleted list
G lines of text
H indentation
-
50. To avoid unnecessary duplication of the same data in a database
E we have to normalize the database
F we have to query the report regularly
G avoid using tables with so many fields
H proof read any data before input into the database

STOP

NOW GO BACK AND CHECK YOUR WORK

- 1.(i) (a) Explain two reasons why robots are useful to industries. (2 marks)
 (b) Describe two measures that can be taken to secure a banking system (4 marks)
- (ii) (a) Describe a DBMS. (2 marks)
 (b) What is relational database? (2 marks)
 (c) Give two advantages of a flat file in database? (2 marks)
- (vi) (a) Explain the term “Programming paradigm”. (1 mark)
 (b) Define the following programming paradigms
 • Procedural programming
 • Declarative programming (4 marks)
-
- 2.(i) (a) What is network topology? (2 marks)
 (b) Explain two considerations in selecting a topology for a school network. (4 marks)
- (iv) (a) What is prototyping (2 marks)
 (b) Give two reasons for prototyping (2 marks)
- (v) (a) What is a program control structure? (2 marks)
 (b) Using either Pascal or C programming language write out the general form for the following control structures
 • Sequence (1 mark)
 • FOR statement and (1 mark)
 • WHILE statement (1 mark)
- (c) Draw the flowchart symbol for the choice/selection structure. (2 marks)
-
- 3.(i) (a) Write out the step involved in SDLC in an annotated diagram. (2 marks)
 (b) Distinguish between piecemeal and direct system implementation methods. (2 marks)
 (c) Describe one other alternative method of building a system . (3 marks)
- (iv) (a) State two functions of a project manager in project management. (2 marks)
 (a) With respect to project management, describe a PERT chart, stating all the elements involved. (2 marks)
 (b) What is the importance of identifying the critical path of a project? (1 mark)
- (v) Discuss TWO possible effects on people who live in some developing countries of having no access or very limited access to ICT. (6 marks)
-
- 4.(i) (a) What is a file format? Give one type of file format. (2 marks)
 (b) Explain one importance of file format. (1 mark)
 (c) State two reasons why file formats vary. (2 marks)
- (iii) (a) Systems need protection from hazards e.g. natural hazards such as flood and fire. Describe two other hazards that may impede a computer system. (4 marks)

- (b) Explain three reasons why wireless communication is not preferred by some organizations. **(3 marks)**
- (iv) Explain the consequence of network communication without each of the following protocols (relate your answer to the purpose of each protocol).
- (a) HTTP.
 - (b) FTP.
 - (c) TCP/IP.
- (3 marks)**
- (v) State two wireless standards and give an estimation of their area of coverage. **(2 marks)**
-

- 5.(i) With regards to the relational database, discuss with the aid of diagrams, the meaning of the following:
- (c) One-to-one relationship. **(2 marks)**
 - (d) One-to-many relationship. **(2 marks)**
 - (e) Many-to-many relationship. **(2 marks)**
- (iii) With the help of well labeled diagrams, describe three commonly used standard network topologies, giving one advantage and one disadvantage for each case **(6 marks)**
- (vi) Briefly describe each of the following
- (a) E-commerce.
 - (b) Browser.
 - (c) E-mail.
 - (d) Search engine.
 - (e) DNS.
- (5 marks)**
-

- 6.(i) List and explain TWO main threats to the safe of data. **(4 marks)**
- (iv) How does the data protection Act define the following terms?
- (a) Personal data.
 - (b) Data.
 - (c) Data Subject.
- (3 marks)**
- (ii) Differentiate between “synchronous” and “asynchronous” data transmission. **(2 marks)**
- (iii) Explain each of the following project management terminologies.
- (a) Project.
 - (b) Critical path.
 - (c) Gantt chart.
- (5 marks)**
- (vii) Name three important factors to consider when designing a new Computer User Interface. **(3 marks)**
-

- 7.(i) Briefly describe the following system software stating the category of each
 (d) Compiler.
 (e) Defragmenter.
 (f) File compression.
 (g) Interpreter (4 marks)
- (iii) State FOUR functions of an operating system when managing a computer's resources. (4 marks)
- (v) Define the term interrupt. State one scenario in which an interrupt is used in the management of an operating system. (2 marks)
- (vi) (a) What is a pseudo-code?
 (b) Write a pseudo-code that request mark for 5 subjects and calculates the average assuming all subjects have equal coefficient. *Notes that average is given by (total marks)/5 in this case.* (1 mark)
(6 marks)
-
- 8.(i) Briefly describe the following systems as used in ICT, giving an example of each
 (a) Monitoring system
 (a) Control system (6 marks)
- (iv) With respect to computer usage, what is ergonomics? (1 mark)
- (v) Describe two ways that can be taken to prevent:
 (a) Carpal tunnel syndrome (CTS).
 (b) Eye strain. (4 marks)
- (iv) Distinguish between protection and security, giving an example of each. (4 marks)
- (v) Describe how transfer of funds is accomplished in E-commerce. (2 marks)
-
- 9.(i) Define the following terms:
 (d) Process
 (e) Interrupt
 (f) Deadlock (6 marks)
- (iii) List two major activities of an operating system with respect to:
 (a) Memory management
 (b) Secondary storage management (4 marks)
- (iv) Differentiate between multiprocessing and multiprogramming. (4 marks)
- (v) (a) What is telemedicine (1 mark)
 (b) Name TWO benefits of telemedicine to remote communities in Cameroon. (2 marks)
-

Task A (Web Authoring: 16 Marks)

In this task you will type the HTML code given below in a text editor to create a Web page. After viewing the output, you will be expected to make modification as directed.

```

1 <HTML>
2 <HEAD>
3 <TITLE>Info and Comm Tech </TITLE>
4 </HEAD>
5 <BODY><center>
6 <H1>COMPUTER SYSTEM</H1>
7 <H2>The computer system is made up of</H2>
8
9     <P>Hardware</P>
10    <P>Software</P>
11    </center>
12 <UL>
13 <H2>The Hardware Component</H2>
14 <P>The major hardware components of a PC include:</P>
15 <UL>
16     <Li>The keyboard
17     <Li>The Mouse
18     <Li>The Monitor
19     <Li>The System Unit
20   </UL>
21   <H2>The Software</H2>
22 <P>Software is made up of:</P>
23
24 </UL>
25 </BODY>
26 </HTML>
27

```

- (a) Type the above HTML code (without the line numbers) in your favorite editor or HTML editor and save it as **ComputerSystem.txt** in your candidate folder. **(2 marks)**
- (b) State the name of text editor used _____ **(1 mark)**
- (c) Create an HTML file by saving the code typed above with the file name **ComputerSystem.html**.
Open the HTML output file created (see your candidate folder) and study the web page. **(1 mark)**
Make the following updates to your web page by modifying the HTML code.
- (d) Modify line 6 so that the header is underlined. Write down the modified line 6 below
..... **(2 marks)**
- (e) Modify lines 9 and 10 to bold characters. Write the modified lines below.
..... **(3 marks)**
- (f) Add statements after line 23 to include the following information
System Software
1. Operating System
 2. Language Translator
 3. Device Driver
 4. Utility software
- Application Software:** Spreadsheet, word processor, Presentation, Database **(5 marks)**
- (g) Print the update files: **ComputerSystem.txt** and a screen shot of the **ComputerSystem.html**. **(2 mark)**

Task B (Database: 16 Marks)

- (a) Open the Fruit Market database found in the candidate folder. (click **No** to block unsafe expressions)
(b) Create the table given below and save it as **Type**.

Type ID	Type
1	Fruit Shop
2	Health Food Store
3	Hotel
4	Restaurant
5	Individual

Indicate the table properties you have used in designing the table above.

Field name	Data Type
Type ID	
Type	

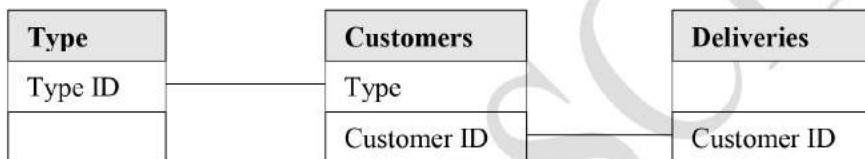
Set **Type ID** as the primary key of the table.

(5 marks)

Close the table you have created.

- (c) Create the relationship between the table Type, Customers and Deliveries.

The relationship description is shown below (Only fields used in the relationship are shown).



Capture the screen that shows the relationship window and paste it in a word processor document and save it as ***Capture***. (3)

(3 marks)

- (d) By making a query, write out the First Names of all the customers, their towns and their respective delivery routes. The customers needed are those who are either in Douala or in Kribi. Save the query as **Customers Details**.

Represent your query as shown in the design view in the table below

Field			
Table			
Criteria			

(5 marks)

- (f) Create a **form** to enter information into the **Customers** table. Capture the screen showing the form in the Datasheet view and paste it in the Capture document created in (c). Print the **Capture file**. **(3 marks)**

Task C (Spreadsheet: 18 Marks)

This question is based on data in a workbook named **Shopping** found in the candidate folder. The workbook is made of two sheets **CUS** and **Items**. The information in these sheets is based on customers purchase made from an equipment store. The details of items (*Item name and Unit price per item*) is shown in the **Items** sheet while the details of customers' purchase are shown in the **CUS** sheet. (i.e. quantity of each item bought).

Open the **Shopping** Workbook found in the **Candidate folder**.

- (a) Insert all borders in the cells over the range **A1:H16** and merge the cells in the range **F13:H14**. **(2 marks)**

(b) Type a formula in F2 that calculates the total amount for items collected by Martha. (Note that the unit price of items is found in **Items** sheet). Write out the formula in the line below.

(c) Modify the formula you have written above (using absolute reference) to enable you copy through the formula to F12. Write out the formula in the space below.

(1 mark)

- (d) Write out the formula you now have in E12.

(1 mark)

- (e) The discount made to customers is based on the total amount. 3% discount is allocated to customer whose total amount is less than 15000 and 5% otherwise. Type a formula in G2 that will compute the discount given to Martha. Write the formula in G2 below.

(2 marks)

Copy the above formula through the cells that follow up to G12.

- (f) Type a formula in H2 that computes the Net Total for Martha. Note that Net Total is the amount to be paid after deducing the discount from Total Amount. Write the formula in H2 below.

----- (1 mark)

Copy the above formula through the cells that follow up to H12.

- (g) Compute the total number of each item bought (see row 13). Write the formula in B13 below

----- (1 mark)

- (h) Compute the total amount realized for each item bought (see row 14). Write the formula in C14 below

----- (1 mark)

- (i) Compute the maximum number of each item bought (row 15). Write the formula in E15 below.

----- (1 mark)

- (j) Compute the minimum number of each item bought (row 16). Write the formula in D16 below.

----- (1 mark)

- (k) Insert a column chart in Items sheet of Unit Price against Material. Set the chart title to Equipment and also label the axes accordingly. Arrange the chart position to fit in one page with the table. (4 marks)

Print the entire shopping workbook with all the two sheets.

1. The two activities of the machine cycle that take place in the control unit are?
 - I Decode-execute
 - J Fetch-decode
 - K Decode-store
 - L Execute-store

2. The memory location with the fastest access rate is
 - I ROM
 - J RAM
 - K Register
 - L Cache

3. The resolution of the print out of a printer is measured in
 - I Pages per minute
 - J Dots per inch
 - K Pixels density
 - L Dot pitch

4. Which of the following provides a mechanism that can be used to convert scanned text into editable text?
 - I OCR
 - J MICR
 - K OMR
 - L Digitizer

5. A document that states in writing how a company plans to protect its physical and data assets.
 - I Data protection act
 - J Copyright
 - K Data dictionary
 - L Security policy

6. What type of backup should be performed prior to an upgrade?
 - I Differential
 - J Sequential
 - K Procedure
 - L Full

7. Which of the following is NOT a function of the operating system?
 - I Deciding which instructions stay in the RAM
 - J Program interaction
 - K Decode instruction in a computer.
 - L Making hardware ready for application use.

8. The integrity of data can be assured by
 - I Creating several backups of the same data
 - J Data verification
 - K Proper antivirus protection
 - L Use of passwords

9. Which of the following can be used to describe the term spooling?
 - I A queue of data in a computer for printing.
 - J Input information into the printer online.
 - K Simultaneous processing and storage online.
 - L Direct conversion of speech into print format.

10. A term used to describe the process of discovering patterns in data that can lead to predictions about the future.
 - I Data mining
 - J verification
 - K Normalization
 - L Data processing

11. The software that enables the operating system to recognize a newly connected device is known as
 - I Utility software
 - J a driver
 - K an interpreter
 - L a device manager.

12. Third generation digital electronic computers use for the design of its electronic circuits.
 - I transistors
 - J logic gates
 - K vacuum tubes
 - L integrated circuits

13. Which of the following is NOT system software?
 - I File manager
 - J Anti-virus software
 - K Productivity software
 - L File compression software

14. A transaction processing system is concerned with
 - I the operational day-to-day activities.
 - J the strategic decision-making support.
 - K a large database of specialized knowledge.
 - L daily update of database

15. A finance system that predicts future business situation is an example of a
 - I predictive system
 - J executive support system
 - K knowledge based system
 - L management information system

16. A method of processing that cumulates data to process it after a period of time is called
 - I batch
 - J Online
 - K distributed
 - L periodic

17. Which of the following is not a benefit of ICT in business today?
 - I Accurate results
 - J Size of business
 - K Instant response
 - L Speed of processing

18. The word size of a computer processor refers to the
 - I number of instructions processed at a time
 - J number of bits the CPU can process simultaneously
 - K number of character it can allow in the database field
 - L maximum number of words that can stay in the RAM for processing

19. A protocol which enable the functioning of global network of computers is
 I FTP
 J Internet Protocol
 K HTTP
 L TCP/IP
-
20. A company writes a computer program to carry out a specific job. This type of program is called;
 I custom software
 J off-the-shelf software
 K general-purpose software
 L special-purpose software
-
21. A spreadsheet formula is given as=SUM(A1:D2). Two cell address involve in the formula are
 I B2 and C1
 J A3 and B2
 K A2 and B3
 L B3 and D1
-
22. A system of programs and data structures that approximates the operation of the human brain is
 I embedded system
 J modeling and simulation
 K genetic programming
 L artificial intelligence
-
23. Which of the following memories is found in the CPU?
 I RAM
 J BIOS
 K ROM
 L Register
-
24. What is true about mobile networks is that they
 I cannot be intercepted.
 J are not accessible everywhere.
 K are available only on mobile phones.
 L cannot be intercepted by walls.
-
25. A huge collection of electronic pages containing information about many different subjects is called
 I Google
 J facebook
 K world wide web
 L search engine
-
26. Upload or downloading data to or from a remote computer on the Internet is done by
 I FTP
 J SMTP
 K POP
 L TCP/IP
-
27. Teleworking is getting normal office work done by working.
 I from a telephone company.
 J away from the office.
 K online out of the office.
 L on the internet while in the office
-
28. At which stage of a SDLC do we check and modify the system to ensure that it continues to meet changing business need?
 I System investigation
 J System design
 K System analysis
 L System maintenance and review
-
29. Which of the following is an activity in the implementation phase of a new system?
 I Determining test items
 J Training of users
 K Writing algorithms
 L Writing codes
-
30. The order of execution of instruction in high level programming language is determined by
 I Sequence
 J Syntax
 K semantics
 L Control structure
-
31. The method used by organization to completely do away with the old system to use a new system is known as _____ implementation.
 I Direct
 J Parallel
 K Phased
 L Complete
-
32. Software that can convert codes written by programmers in high level languages into machine code is
 A compiler
 B assembler
 C decoder
 D operating system
-
33. A milestone in project management indicates the
 I Completion of the first stage of the project
 J Passing of 50% of the time allocated to the project.
 K Completion of an important stage of a project.
 L Conclusion of a stage of a project with zero time lag.
-
34. When a program fails to compile because a statement separator such as a semicolon is missing in the program, this type of error is known as a
 I lexical error.
 J syntax error.
 K logic error.
 L semantic error.
-
35. A program that provides a way to look at and interact with the information on the world wide Web is a
 I HTML editor
 J search engine.
 K browser.
 L web crawler.
-

36. A field in a database table which appears as a primary key in another database table is called a
 I candidate key.
 J secondary key.
 K foreign key.
 L primary key.
37. The process of determining whether someone is, in fact, who he/she is declared to be is
 I authentication.
 J identification
 K confidentiality
 L privacy
38. The type of software that reduces file size in storage without affecting the content of the file is
 I trojan
 J defragmenter.
 K driver software.
 L utility software.
39. Which of the following is a data security measure that can be used to prevent external threat in a network?
 I Use of firewall.
 J Defragmenter
 K Biometric Systems.
 L Debugging software.
40. Which of the following statements is NOT true about a primary key?
 I It does not contain a blank value.
 J It is unique identifier of records.
 K It is always in text form.
 L It should be the first field in a table.
41. Concerning e-banking, what is the advantage of ATM to a banker?
 I To withdraw money at any time.
 J Serve many people at a time.
 K Control the amount of people paid to customers.
 L To save customers time
42. To do research, buy and sell stocks online is known as:
 I e-banking.
 J e-marketing.
 K e-commerce.
 L e-trading.
43. A programmer who requires solving a problem that makes logical decision based on a condition would use _____ control structure.
 I sequence
 J Selection
 K Repetition
 L Iterative
44. A study method in which the user receives study material and takes examination online is known as:
 I electronic mailing.
 J computer aided learning.
 K videoconferencing.
 L electronic learning.
45. A graphical representation of an algorithm is known as
 I Pseudo code
 J Logic structure
 K flow chart
 L flow diagram
46. The paradigm in which the programmer designs programs by outlining steps to be followed to solve a problem is called:
 I top-down programming.
 J procedural programming
 K stepwise programming
 L object-oriented programming
47. At which stage of project management is it possible for a decision to be taken to cancel the project?
 I Initiation.
 J Planning.
 K Implementation.
 L Termination.
48. Which of the following is not a project management constraint?
 I Critical path.
 J Time.
 K Cost.
 L Scope
49. Which communications technique transmits many signals simultaneously over a single channel?
 I Duplexing
 J Half duplexing
 K Channeling
 L Multiplexing
50. What is the output of the algorithm below?
1. Set i to 1
 2. Set total to 1
 3. Do steps 4 and 5 until $i > 3$
 4. Total = total * i
 5. $i = i + 1$
 6. Output: total
- I 24
 J 20
 K 3
 L 15

STOP

GO BACK AND CHECK YOUR WORK

- 1.(0) Explain the following computer terms giving examples where necessary:
- (a) Video conferencing
 - (b) Stock control system
 - (c) E-learning
- (6 marks)
-
- (ii) (a) Explain one stage of the machine instruction cycle that takes place in the ALU of the CPU.
- (2 marks)
-
- (d) Sketch the logic circuit for the logic expression $(P \text{ AND } Q) \text{ OR } (\overline{P} \text{ AND } \overline{Q})$.
- (3 marks)
-
- (ix) (a) What is software reuse with respect to system development?
- (2 marks)
- (b) State two criteria used to select existing software for reuse
- (2 marks)
- (c) Explain two situations that may cause organizations to engage in externally developed (outsourcing) software.
- (2 marks)
-
- 2.(i)(a) Explain the main difference between the peer-to-peer and the client/server networks
- (3 marks)
- (b) Give two disadvantages of the client/server network.
- (2 marks)
-
- (vi) (a) What is an Information System?
- (2 marks)
- (b) Explain the term “procedure” as a component of an information system.
- (1 marks)
- (c) In terms of information system describes GIS and LIS.
- (4 marks)
-
- (vii) (a) What is the main difference between a high level language (HLL) and a low level language (LLL)?
- (2 marks)
- (b) Explain what is meant by machine dependent.
Which of these languages is machine dependent: HLL or LLL?
- (2 marks)
- (b) Give one example of HLL
- (1 mark)
-
- 3.(0) (a) What is SDLC?
- (1 mark)
- (d) Give two advantages of direct system implementation method.
- (2 marks)
- (e) State three activities involved in the design stage of SDLC
- (3 marks)
-
- (vi) (a) What is the role of a system analyst in an organization?
- (2 marks)
- (b) Describe two ways by which a system analyst can get information about a system to be developed
- (3 marks)
-
- (vii) Discuss with examples three changes in the workplace due to the increased use of ICT.
Your answer should refer to the changes for the employees
- (6 marks)
-
- 4.(0) (a) What is an operating system?
- (2 marks)
- (b) Explain the role played by the operating system in the given instances
- integrating additional hardware to a computer system
 - Managing RAM usage during processing.
- (4 marks)
-
- (iv) (a) What is a computer interface? **(1 mark)**
- (b) Give the characteristic of the Graphical User Interface. **(2 marks)**
- (c) State two advantages of GUT over Command Line.
- (2 marks)
-
- (vi) Explain the effect and the consequences on computer system in the absence of each of the following:
- (a) RAM
 - (b) Buffers
 - (c) NIC
- (3 marks)
-
- (vii) (a) What is memory?
- (1 mark)
- (b) Describe the purpose of ROM in the computer system.
- (2 marks)
-

- 5.(i) Structured programming refers to a general methodology of writing good programs.
 (f) What is programming? (1 mark)
 (g) Give 4 properties of a good program. (4 marks)
- (ii) Describe briefly the following :
 (a) Application software (2 marks)
 (b) Virtual reality (2 marks)
 (c) Biometrics (2 marks)
- (x) Give three advantages of simulation. (3 marks)
- (xi) Write the full meaning of each of the following abbreviations?
 (a) ASCII (1 mark)
 (b) PAN network (1 mark)
 (c) EPROM (1 mark)
-
- 6.(i) It is usually necessary to compare different implementations of an algorithm to choose an optimal one. This can be done by considering their relative efficiencies.
 (a) What is efficiency with regards to algorithm performance (1 mark)
 (b) Which two basic resources of a computer can be used to measure the efficiency of an algorithm? (2 marks)
- (v) (a) Describe simulation and a situation that can be simulated. (3 marks)
 (b) Give three advantages of simulation to architects. (3 marks)
- (vi) Work generally could be classified into operations or project. Although in some cases, they do overlap.
 (a) Give any two characteristics common to operations and project. (2 marks)
 (b) Make a difference between operations and project. (2 marks)
- (vii) In a multiprogramming and time-sharing environment, several users share the same system simultaneously. This situation can result to various security problems.
 (a) What are two such security problems? (2 marks)
 (b) Is it possible to ensure the same degree of security in a time-shared machine as in a dedicated machine? Explain your answer. (2 marks)
-
- 7.(i) During the late 1960s and 1970s, there had been an outcry over impending “software crises”. The symptoms of such software crises still exist in present day. List 4 symptoms of software crises (4 marks)
- (ii) Explain the following terms:
 (a) Parity bit (2 marks)
 (b) ARPNET (2 marks)
 (c) Internet standard (2 marks)
- (iii) (a) What is prototyping? (2 marks)
 (b) List three benefits of prototyping. (3 marks)
- (iv) Given that a disk has 18 sectors, 80 tracks and a sector capacity of 512 bytes. Prove that the storage capacity of the disk is 1.44MB. (2 marks)
-

- 8.(i) Explain briefly the meaning of each of the following terms giving examples where necessary.
 (g) Automatic Speech recognition (ASR) (3 marks).
 (h) HTML (2 marks)
 (i) Artificial Intelligence (AI) (3 marks)
 (j) Extranet (3 marks)
 (k) MIS (3 marks)

- (iv) (a) Explain the meaning of the term "Data Security". **(1 mark)**
(b) Describe how encryption will help to protect information or a message which is sent across a network. **(2 marks)**
-

- 9,(i) Define the following terms of online Internet services giving TWO advantages and ONE disadvantage of each;
(a) E-Commerce **(3 marks)**
(b) E-Banking **(3 marks)**
(c) E-Health **(3 marks)**
- (ii) (a) What is a social network? **(2 marks)**
(b) Outline TWO advantages and ONE limitation of social networking. **(3 marks)**
- (iii) Explain the following errors that can arise during programming:
(a) syntax errors
(b) run-time errors
(c) logic errors **(3 marks)**
-

Task A (Spreadsheet 19 marks)

This task will require the use of spreadsheet to calculate profit made by six women who buy food stuff from a bush market and resell in town.

The data collected for a given transaction is found in a workbook named Buy-am-Sell-am found in the ***Candidate folder***.

Open the Buy-am-Sell-am workbook.

The price per basin/bunch of each food item is given in red in the shaded cells. These cells contain comments which are made readable by pointing to it.

- a) Merge the cells of the first row (containing the header PURCHASE) in the range A1:F1. **(1 mark)**

- b) Type a formula in F4 to calculate the total amount MA ELIZA spends in buying all the food items. Your formula should use absolute reference.

Write down the formula you have entered in F4 in the space below

(3 marks)

-
c) Copy the formula in F4 to the cells from F5 to F9 and also write a formula to calculate the total amount spent by all the three women in F10. Write down the formula in F10 in the space below

(1 mark)

- d) Type a formula to calculate the maximum and minimum number under each of the field name in the table for purchase. Copy both formulas through column B to column F.

Write down the formula contain in the cells given below.

B11:

E12: **(4 marks)**

- e) Also calculate the total selling price in F24. Write down the formula you have typed in F19 in the line below.

.....
(2 marks)

- f) Use formula to calculate the profit made by each woman in the SALES table.

(NB: Profit is the difference between the Sales Price and the Buying Price)

Write down the formula to calculate the profit of MA BRIDGET in the space below.

.....
(2 marks)

- g) Calculate using formula the percentage gain of each woman.

%Profit is $(\text{Profit} + \text{Buying Price}) * 100$. The result is rounded to 2 decimal places.

Write down the formula to calculate the % Profit of MA MARINETTE in the line below.

.....
(4 marks)

- h) Calculate the Total Selling Price, Profit and Total %Profit (See row 24). **(2 marks)**

Print the table.

Task B (Programming 14 marks)

You will be expected to convert a pseudo code to a flowchart diagram. The program to implement the pseudo code is given in C and in Pascal. You will have to type and run **one of the** codes using either c or Pascal compiler and record the final result of the output.

Problem description

The problem solved by the code is to bill customers of an electricity power supply company. The company intends to favour the less privileged customers more than the privileged. A less privileged customer is one who consumes less than 100 units while those who consume 100 units and above are privileged. The less privileged pays 50 CFA per unit while the privileged pays 125 CFA F per unit.

The algorithm used for the problem above is given below.

```

Start
Give the units consumed by the customer, U
If U<100 then
    Get the unit charge for the less privilege, Charge
Else
    Get the unit charge for the privileged, Charge
EndIF
Calculate Bill=U*Charge.
Print "Bill".
Stop

```

- a) Convert the pseudocode above to a flow chart in the space below. **(5 marks)**

- b) Type **one** of the codes in **Table 1** below using an appropriate compiler environment.
(Save the Pascal code as *Billing2.pas*; save the C Code as *Billing2.c*).

Compile the code and ensure that there is no typing error.

(2 marks)

State the name of the compiler you have used

Run the code and make the following inputs

Give the units consumed by the customer: 135

Give the unit charge for the privileged: 125

Write down the final result of the output:

(3 marks)

Table 1

Pascal code	C code
<pre> Program Billing; VAR Bill, U, Charge: integer; Begin writeln('Give the units consumed by the customer:'); readln(U); if U<100 then begin Writeln('Give the unit charge for less privileged'); readln(Charge) end; Else begin Writeln('Give the unit charge for the privileged'); readln(Charge) end; Bill:=U*Charge; writeln('The Bill=',Bill); readln; end.</pre>	<pre> #include <stdio.h> int main () { int Bill, U, Charge; printf("Give the units consumed by the customer:\n"); scanf("%d", &U); if(HoursWorked <=72) { printf("Give the unit charge for less privileged"; scanf("%d",&Charge); } else { printf("Give the unit charge for the privileged"; scanf("%d", &Charge); } Bill:=U*Charge; printf("The Bill is %d", Bill); getch(); return 0; }</pre>

Note: Those using Turbo pascal for windows compiler will replace the first two lines of the Pascal code with the following three lines.

Program Billing;
Uses WinCrt
VAR

- c) Write in the lines below two statements that will request for the name of the customer in the program.
(Don't add this to the program).
-
.....
.....

(4 marks)

Print the code.

Task C (Database: 18 marks)

This task is based for supplies of some product made to customers in a city by some traders. You will be expected to extract information from **Table 2** to implement a database to hold information about supplies made to these customers.

Table 2

CustomerID	CusName	CusSurname	ProductName	Quantity	UnitPrice	TraderName
1	Luma	Sam	Salt	4	2800	Takang
			Savon	4	10000	Sona
			Sugar	12	6000	Beatrice
2	Gobina	Joshua	Flour	7	18000	Batang
3	Mabu	Mortha	Salt	3	2800	Takang
			Sugar	20	6000	Beatrice
			Zinc	5	3400	Muluh
			Savon	5	10000	Sona

- a) Create three tables following the structures given below. The structure is given using the format **Table_Name(PrimaryKey*, FieldName,...)**

Customer(*CustomerID** , CusName, CusSurname)

Supplies(CustomerID, ProductName, Quantity)

Product(*ProductName** , UnitPrice, TraderName)

Represent the three tables in the space below taking values from **Table 2** above. (6 marks)

- b) Create a database named **Shopping** and save it in the candidate folder. **(1 mark)**

c) Define each table properties in the space below showing the field name and the data type for each field name.

Customer table

Field name	Data type

Supplies tables

Field name	Data type

Product table

Field name	Data type

- d) Create the three tables derived above in your database

Populate each of the tables created in the database with the data derived from your tables in (a) above.

(3 marks)

- e) Create a relationship between the three tables. Draw the relationship diagram in the space below indicating the table names and the keys that relate the tables.

.....
.....
.....
.....
.....
.....
.....
.....
.....

(2 marks)

- f) By making a query, list all the customers who were supplied Salt and/or sugar and the quantity that were supplied. Your query should also show the price for each product. Save the query as *Supplies2*. (3 marks)

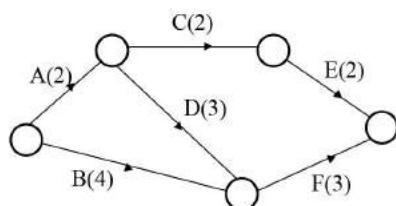
Print the query.

Print the Customer table

1. Which one of the following input devices is the most appropriate to mark correct answer of multiple choice questions on an answer sheet?
- M Optical mark reader.
N Scanner
O Magnetic mark reader
P Magnetic character reader
-
2. What is the main advantage of networking?
- M Cost reduction.
N Sharing of resources
O Advanced technology
P Internet services.
-
3. A software used to prevent intruders from gaining access into networks is called a(n) _____
- M Antivirus.
N Malware
O Firewall.
P Spyware.
-
4. A network type suitable for a large electricity corporation which has offices in all regions of the Republic of Cameroun is a _____
- M LAN
N WAN
O MAN
P WLAN
-
5. Which of the following is most likely to be true about computer networks?
- M The further apart the computers are, the slower the communication is.
N The more the computers, the more difficult it is to communicate.
O Virus spread more in WANs than in LANs
P The more the users, the more insecure the network is more likely to become.
-
6. Which of the following explains the effect on a client-server network of bus topology when a client breaks down?
- M The network fails.
N Only the computers on the side of the server function.
O The network continues to function.
P The other computer will improve in performance
-
7. Select the best option if the cable of the file server in a star network breaks
- M The network remains functional but no file from the server can be retrieved.
N The system stops functioning and no file from the server can be retrieved.
O All services of the server stop but its Internet services remain functional.
P Another computer plays the role of the file server and the system stays on.
-
8. Information used by a router to determine the destination of each piece of data is contained in a _____
- M Configuration table
N TCP/IP
O Packet of data.
P Network board.
-
9. The situation in which users of an intranet work together in groups using web cameras is
- M Distance working.
N Videoconferencing.
O Distributed computing.
P Blog working
-
10. A command line interface is different from a graphical user interface in that
- M It is not text-based.
N Commands are given using menus.
O It requires a mouse.
P Doesn't require users to have knowledge of commands.
-
11. Which of the following is NOT an example of a pointing device?
- M Keyboard.
N Joystick.
O Mouse.
P Light pen.
-
12. The name given to files that have been reduced in size is _____
- M Coded files
N Compress files.
O Shrunken files.
P Decoded files.
-
13. Software designed to disturb the functioning of a computer system is called a _____
- M Cookies.
N Virus.
O Spyware.
P Driver.
-

14. Which of the following is a storage device?
 M Memory card reader.
 N Flash disk.
 O DVD.
 P Floppy disk.
-
15. A multimedia resource may combine several elements such as
 M Video, text and speakers only.
 N Text and graphics only
 O Text sound, graphics, animation and video only.
 P Text and sound only.
-
16. Backup of data files will usually help to prevent:
 M Virus infection.
 N Loss of authenticity.
 O Duplication of data.
 P Loss of Data.
-
17. Which of the software would you use to write a textbook?
 M Web browsing software.
 N Spreadsheet software.
 O Word processing tutorial.
 P Word processor.
-
18. Which of these is true of a system Development Life Cycle?
 M It is managed by system analyst.
 N Gives the duration of the project.
 O Has eight phases of development.
 P It is used to manage a project
-
19. Which of these is NOT used as a software development model?
 M Navigation.
 N Prototyping
 O Boehm spiral model.
 P Waterfall model
-
20. Which of the following is a low level language?
 M COBOL language.
 N FORTRAN language.
 O ALGOL language.
 P Assembly language.
-
21. Exactly, how many bytes are in 2.5 kilobytes?
 M 256
 N 2560
 O 2524
 P 2512
-
22. The clock speed of a CPU is measured in
 M Bits per second.
 N Hertz
 O Cycles per second.
 P Bytes per second.
-
23. The correct order of the stages for a system development life cycle is:
 M Analysis, Feasibility Study, implementation, Design.
 N Analysis, Design, feasibility study, implementation.
 O Feasibility study, Analysis, Design, implementation
 P Feasibility study, Analysis, implementation, Design
-
24. In SDLC, the collection of information by means of interviews, questionnaires observation and inspection of documents is an activity in
 M System analysis.
 N System investigation.
 O System specification.
 P Information requirement.
-
25. What data type do we use for a variable called FOUND which asserts the presence of an element in an array of numbers?
 M Real.
 N Boolean.
 O Integer.
 P Number.
-
26. An information system that manages on-line requests of hotel clients is termed a _____
 M Geographic information system.
 N Real-time system.
 O Management information system.
 P Batch processing system.
-
27. Which of the lists below contains only input devices?
 M Mouse, webcam, MICR.
 N Printer, keyboard, scanner.
 O Mouse, printer, speakers.
 P Microphone, mouse, flash disk.

28. Which of the following are Magnetic storage media?
 M Floppy disk and USB flash disk.
 N DVD and CD.
 O Hard disk and Floppy disk
 P Hard disk and DVD
-
29. A device that captures data to be processed by the computer is called a(n)
 M Storage device.
 N Connecting device.
 O Communication device.
 P Input device.
-
30. Which of the following best describe the purpose of a communication system?
 M Communicates messages over the radio, TV and telephones.
 N Transport data and information.
 O Manages data and information.
 P Controls activities of a company.
-
31. Which of the following lists contains only output devices?
 M Printer, monitor, keyboard.
 N Scanner, Printer, monitor.
 O Modem, router, switch.
 P Loudspeaker, monitor, Printer.
-
32. A program that translates a source code from a high-level programming language to a lower-level language is called a
 M Assembler.
 N Converter.
 O Decoder.
 P Compiler.
-
33. Which of the following is an internet search engine?
 M Yahoo! Mail.
 N Yahoo! Messenger.
 O Mozilla Firefox
 P Yahoo.
-
34. Data is transmitted over the internet as _____
 M Data packets
 N IP signals.
 O IP packets.
 P Data Waves.
-
35. The memory that loses its information when the system's power is switched off is said to be
 M Volatile.
 N Power dependent.
 O Short term.
 P Interrupted memory.
-
36. Which of the following scenarios best describes intranet?
 M It is a network that provides Internet services only to some computers.
 N It is a private network that functions like the internet.
 O It is a local Area Network on the World Wide Web (www).
 P It is any network that has Internet.
-
37. Which of the following describes the stages of the machine cycle:
 M Input, decode, execute.
 N Fetch, processing, input.
 O Fetch, decode, execute.
 P Input, storage, output.
-
38. A service which can be used by the state of Cameroon to provide online services to its citizens is known as _____
 M E-mail.
 N Web routing.
 O Legislation.
 P E-government.
-
39. The PERT chart below shows tasks A to F of a project with the duration of each task in brackets.



The critical path of the project is _____

- M A, D, F
 N A, C, E
 O B, D, C, E.
 P B, F.
-

40. The amount of time by which a project task may be extended or delayed without delaying other tasks is known as _____
 M Lag time.
 N Slack time
 O Lead time.
 P Extra time.
-
41. A task that shows an achievement in a project with zero duration is _____
 M Critical task.
 N Float task.
 O Milestone.
 P Slack task.
-
42. Which of the following terms best describe what a project has to accomplish?
 M Target.
 N Task.
 O Constraint.
 P Scope.
-
43. An electricity cooperation calculates the amounts to be paid by its clients as follows:
 Those who consume less than 100 units per month pay 50frs per unit; those who consume 100 units and above pay 75frs per unit. What algorithmic structure can be used to solve the problem?
 M Recursion
 N Repetition
 O Loop
 P Choice
-
44. Which of the following data structures is referred to as a LIFO (Last In First Out) abstract data type?
 M List.
 N Queue.
 O Stack.
 P Tree.
-
45. Translating an algorithm into a programming language is called:
 M Coding
 N Computing.
 O Interpreting.
 P Debugging.

-
46. Study the algorithm below.
 Get a positive integer, N
 If $N < 3$
 Set P to $3*N/2$
 ELSE
 Set Y to $5*N/2$
 SET P to Y-4
 ENDIF
 PRINT P
 What is the value of P given that the value of N at the beginning is 6?
 M 11
 N 9
 O 5
 P 15
-
47. Which of the following loop construct will execute at least once even if the test expression is false
 M For.
 N DO-While.
 O While
 P If
-
48. Which of the following is true of Gantt Charts?
 M They show the percentage of different tasks in a project
 N They allow the manager of a project to monitor the progress of a project
 O They are a group of Pie charts that are connected to give a project manager an idea of how projects are related.
 P They are charts on which the project manager records finished tasks.
-
49. A program that needs to be compiled before execution is in
 M Low level language
 N High level language
 O Machine Code
 P Compilation code
-
50. When a code is compiled a(n) _____ is produced
 I Output
 J File
 K Object code
 L Source code

STOP

GO BACK AND CHECK YOUR WORK

- 1.(i) Define the following ICT terms and for each, give one way that it can be effectively used in today's Cameroon in any domain of your choice.
- (d) Teleworking
 - (e) Videoconferencing
 - (f) Office Automation
 - (g) Telemedicine (8 marks)
- (iii) (a) What is a robot? (2 marks)
 (e) Explain one application of a robot. (1 mark)
 (f) Give one disadvantage of a robot. (1 mark)
- (xii) (a) Convert 580.25w to binary. (2 marks)
 (b) Evaluate $11b \times 10b$ (2 marks)
 (c) Evaluate $1011011_2 + 1111b$ (2 marks)
-
- 2.(i)(a)State and briefly explain THREE computer crimes common in Cameroon of today. (3 marks)
 (b) For each of the three crimes named in (a) give ONE method you would use to prevent it. (2 marks)
- (viii) (a) Differentiate between interactive processing and batch processing. (2 marks)
 (b) Describe TWO Examples of batch processing. (2 marks)
- (ix) Briefly describe the following
 (a) Management Information System (MIS). (2 marks)
 (b) E-Commerce (2 marks)
- (x) Explain THREE reasons why wireless communications is not preferred by some organizations. (3 marks)
-
- 3.(i) (a) Differentiate between Flat file database and relational database (2 marks)
 (f) Give TWO advantages of using a relational database over a flat file database. (2 marks)
 (g) Explain the term "redundancy" as used in database and describe how it can be handled in database design (3 marks)
- (viii) Explain the following system terminologies
 (c) System testing (2 marks)
 (d) Acceptance testing (2 marks)
 (c) System Development life Cycle (1 mark)
- (ix) Describe the main function of the following in an intranet.
 (a) Firewall (2 marks)
 (b) Repeater (1 mark)
 (c) Switch. (2 marks)
-
- 4.(i) A company provides network services to its customers in a building occupying three rooms.
 The network is connected to the internet to bring special e-mail facilities to its customers.
 (a) Give the name of the device used to connect workstations in a client-server network. (1 mark)
 (b) Give the name of the device used to connect similar or dissimilar networks. (1 mark)
 (c) Explain why a computer could be considered a client and another consider a server in a client/server network. (2 marks)
- (v) Describe the functioning of the following data transmission devices.
 (a) Multiplexing; (2 marks)
 (b) Half-duplex; (2 marks)
 (c) Simplex; (2 marks)
- (viii) Suggest TWO methods for protecting user e-mail account from virus attacks. (2 marks)
- (ix) Wireless networking technology is becoming very popular with people who access the internet at home.
 Describe TWO advantages and one disadvantages of using wireless network at home. (3 marks)
- (x) Describe TWO services available on the Internet that organizations can use other than e-mail. (2 marks)

- 5.(i) Generally, a computer program could be divided into any of the following control structures based on the function to be performed: sequence, Selection/choice, Iteration.
- (h) Briefly explain each of the three control structure named above. **(6 marks)**
- (i) Study the algorithms A, B and C below
- A: If you are above 1.95 metres tall
THEN apply for the basketball
Scholarship
ELSE pay for your basketball classes
- B: GO TO the box
Pick two numbers randomly
Add the two numbers
WRITE down the sum
STOP
- C: DO spend the money in your pocket, one hundred francs at a time
UNTIL you are left with less than one hundred francs

Match the algorithms above to the corresponding control structure named above by completing the Following table: **(3 marks)**

Algorithm	Type of control structure
A	
B	
C	

- (iv) Define the machine cycle and briefly explain each of the stage involved. **(4 marks)**
- (xv) (a) What is e-governance?
(f) Discuss the benefit of e-governance to the Cameroon government with respect to
 - Elections
 - Taxation
 - Education**(3 marks)**
-
- 6.(i) (a) What is memory **(1 mark)**
(b) State and describe the functions of two memory chips found in a computer. **(4 marks)**
(c) Give the difference between sequential files and random files. **(2 marks)**
(d) Define each of the following stages in the SDLC and describe its main task.
 - System analysis **(2 marks)**
 - System construction **(2 marks)**
-
- (viii) (a) The contents of a memory location reads 10100111. What is the decimal equivalent of this content? **(2 marks)**
(b) Convert the hexadecimal Number A7 to binary. **(2 marks)**
(c) Give two benefits of increasing the memory of a computer system. **(2 marks)**
-
- 7.(i) (a) Describe an operating system and give **TWO** examples. **(2 marks)**
(b) Distinguish between command line and graphical user interface. **(2 marks)**
(c) Explain **FOUR** functions of an operating system. **(4 marks)**
(iv) Describe **TWO** methods that can be used to convert an old information system to a new one. **(4 marks)**
(b) Name and explain two types of operating system. **(2 marks)**
(vii) (a) What is the difference between data security and Data protection. **(2 marks)**
(b) Name and explain **THREE** methods you could use to secure data in a computer system. **(3 marks)**

- 8.(i) Explain each of the following project management terminologies
 (b) Critical path; (2 marks)
 (c) Gantt chart; (2 marks)
 (d) Project. (1 mark)
- (vi) The circuit below implement that AND logical operator for the bulb to turn on, i.e. when the logical value of F equals 1 or when power passes from supply to the bulb.

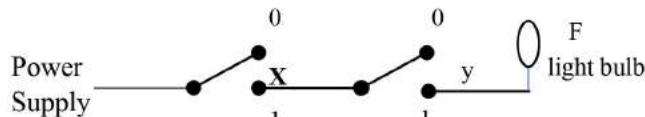


Figure 1

- (a) Use figure 1 to complete the table for the inputs variables x and y taking a value of 1 for ON and 0 for OFF (3 marks)

X	Y	F
0	0	
0	1	
1	0	
1	1	

- (b) What values will X and Y take for the bulb to light? (2 marks)

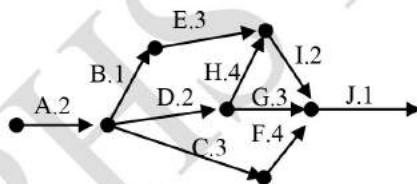
- (v) Given two inputs X and Y in a binary logic circuit write down two expressions of De Morgan's theorem for AND and OR. (3 marks)

- (vi) (a) Why is an expert system referred to as a knowledge based system? (2 marks)

- 9.(i) Explain the importance of the following types of software and give an example in each case

- (l) Device driver. (2 marks)
 (m) Utility software (2 marks)
 (n) Language translator. (2 marks)

- (v) The PERT chart for a certain project is given below.



- (a) State the full meaning of PERT (1 mark)
 (b) Find the critical path showing how it is identified. (2 marks)
 (c) How long is the project estimated to last (1 mark)
 (d) Identify two slack tasks on two separate path and state the slack time of each. (2 marks)

- (vi) (a) Explain serial data transmission method, and state the two types of serial data transmission methods. (3 marks)
 (b) Describe parallel transmission method, and explain a situation where it is used. (2 marks)

Task A (Databases 19 marks)

You are required to update a database for a school library to store books. You are given a database named *School Library* found in the candidate folder. The database already contains one table named *Books*. You will be expected to create one other table (BookDetails) to have two tables in this database. After creating the table, you will be expected to create a relationship between the two tables and make a query and a report. Implement in your database what ever you are asked to write down in this task.

1. Open a database called *School Library* found in your candidate folder on the Desktop.
2. Open the table called *Books* and use it to complete the table below.

Field Name	Data Type	Field size
Book_ID		
Title		
Subject	Text	30
NoOfCopies		

(3 marks)

3. Create another table in *School Library* called *BookDetails* with following records.

ID	Book_ID	Version	Author	ISBN
1	1	1	Peter J	413S
2	1	4	Andrew N	513S
3	2	4	Mbah B	613S
4	2	3	Eto C	713S
5	4	2	Francis N	913S
6	5	1	Fred T	813S

(4 marks)

4. State the data type for ISBN (1 mark)
5. Identify the primary key of the table *BookDetails* (2 marks)
6. Establish the relationship between the Books and the BookDetails tables.
Sketch the diagram of your relationship in the space below.

(4 marks)

7. Establish a query saved as *BookQuery* to display all the books in the library that have more than one copies remaining (your query should display the BookID, Subject, and NoOfCopies). From your query fill the table below.

Field				
Table				
Sort				
Criteria				
Show				
Or				

(5 marks)

Print *BookQuery* and *BookDetails*.

Task B: Spreadsheet (16 marks)

This task will require a workbook named MEETING found in the candidate folder. The spreadsheet shows a thrift and loan table of a small group of people. You are called to summarise the records at the end of the year by using spreadsheet formulae to make calculations.

1. Open the MEETING spreadsheet. **(1 mark)**

2. Insert border in the area containing the table. **(2 marks)**

3. Insert a formula in the F column to calculate the difference which is calculated by subtracting the loan from the savings. Write the formula you have in F5 in the line below.

F5 **(2 marks)**

4. Insert a formula in the G column to calculate the simple interest which is 5 percent of the loan. Write the formula you have in G2 in the line below.

G2 **(3 marks)**

5. The bonus is calculated on two factors; those whose savings are greater than 25000 and loan less than the savings get 10 percent of the difference (column F) as bonus else they get zero bonus. Write the formula you will use to calculate the bonus for Moto John in J2.

J2 **(3 marks)**

6. Insert a formula in column J to calculate the balance for all the members. Write the formula you will use to calculate the balance for Moto John J2. (Use the fact that a positive sign on the field name indicates benefits to the member while a negative sign indicates a deduction to calculate the balance). Write the formula you will use to calculate the bonus Moto John in J2.

J2 **(2 marks)**

7. Insert a total for all the columns along row 10. Write the formula in J10 in the line below.

J10 **(2 marks)**

Task C (PROGRAMMING 15 marks)

In this task you are expected to type either the Pascal code or the C code using the appropriate programming environment. After typing the code you will have to compile and run the code. You will be given some input to test the program and record the output.

Pascal code	C code
<pre>PROGRAM PAYMENT (INPUT, OUTPUT); VAR Name: Sting Pay, HoursWorked, Pyrate, Overtime, OverTinePay: Real; Begin Writeln('Enter the name of worker'); Read(Name); Writeln('Enter number of hours worked'); Readln(HoursWorked); Writeln('Enter the amount paid per hour'); Readln(PayRate); if (HoursWorked <=72) then Pay:= HoursWorked*PayRate else</pre>	<pre>#include <stdio.h> int main () { char Name[20]; float Pay, HoursWorked, PayRate, OverTime; OvertimePay; printf("Enter the name of the worker\n"); scanf("%c", &Name); printf("Enter number of hours worked"); scanf("%f", &HoursWorked); printf("Enter the amount paid per hour") scanf("%f", &PayRate); if(HoursWorked <=72) Pay=HoursWorked*PayRate else</pre>

```

Else
Begin
    Overtime:= HoursWorked -72;
    OvertimePay:=OverTime*PayRate*1.5;
    Pay:=72*PayRate + OverTimePay;
End;
Writeln('The total payment is: ', Pay);
Readln;
End.
}
OverTime=HoursWorked -72;
OverTimePay=OverTime*PayRate*1.5;
Pay=72*PayRate + OverTimePay;
}
printf("The total payment is: %f", Pay);
return 0;
}

```

Questions

1. State the compiler you will use for this program.(1 mark)
 2. Type the program in the compiler chosen above, compile and run the program with the given test data below
 (a) Name=Ali
 HoursWorked=45
 PayRate=1500
 Copy from your program the line that give the final outcome.

(6 marks)
 3. State two declared variables in the code: (2 marks)
 4. State two reserved words used in the code: (2 marks)
 5. State two control structures that are used in the code.
(2 marks)
 6. Print the code
-

1. A(n) _____ is installed when a new hardware is connected to the computer

A	Defragmenter
B	Device driver
C	Operating system
D	Translator

2. A technique that can capture data by converting text information on paper into editable text in the computer.

A	OCR
B	MICR
C	Scanning
D	OMR

3. Components in the CPU communicate through the:

A	NIC
B	RAM
C	Register
D	Bus

4. Eyestrain can be reduced by:

A	reducing room light intensity.
B	using LCD monitors.
C	using CRT monitors
D	avoiding breaking eye contact with monitor.

5. Which of the following is a volatile medium?

A	DVD
B	Main memory
C	ROM
D	Flash memory

6. A task in a project was programmed to take 6 days although it can be finished in 4 days. This task is said to:

A	Be a lag task.
B	Be a critical task.
C	Have a successor
D	Be a milestone task.

7. The technique of developing a system model and testing to make adjustments until an acceptable product is realized is known as:

A	Waterfall technique.
B	SDLC.
C	Flow charting.
D	Prototyping.

8. The equivalence of the binary number 111110 in hexa decimal is:

A	3E
B	F2
C	76
D	D3

9. A tool necessary to make payments in e-commerce is :

A	ISP
B	ATM
C	Credit card
D	ADSL

10. The component that is used by the computer to represent data is:

A	Keyboard
B	Logic Gates
C	Motherboard
D	Control unit

11. A network topology in which each device is directly connected to all other devices by a separate cable is known as:

A	Ring
B	Star
C	Bus
D	Hybrid

12. A measure that will ensure that transmitted data is error free is known as:

A	Data debugging
B	Data integrity
C	Data encryption
D	Data validity

13. If two users attempt to update the same record in a database

A	the DBMS blocks the record to one user
B	the DBMS will freeze
C	the DBMS will allow both updates to be saved.
D	the DBMS will shut down.

14. Which of the following are stages of the machine cycle in the control unit?

A	Control, Execute
B	Fetch, Execute
C	Execute, store
D	Decode, Fetch

15. Study the algorithm below

Start

 Give two integers, N and M

 If N is greater than M

 Then Set M to M-2

 Else Set M to N + 3

 EndIF

 Print M.

Stop

Given that the input in the first statement are N=5, M=7, what is the value of the output?

A	15
B	8
C	13
D	5

16. Which of the following is NOT an activity in the design phase of system development?

A	Selecting hardware needed
B	Writing algorithms
C	Draw up strategies for implementation
D	Writing codes for instance

17. Voters e-registration can be describe as

A	E-Government
B	Electronic census
C	Online voting
D	Electronic capture

18. Bit of data form many wires are to be transmitted over a single wire. The device needed

A	Modem
B	Bus
C	Multiplexer
D	Switch

19. The control structure that executes a set of instructions a number of times based on a condition is called a ?

A	Logic
B	Choice
C	Loop
D	Sequence

20. A system building tool that can be used to predict failures:

A	SDLC
B	Simulation
C	Try-by-error
D	Top-Down

21. The software that attributes file format is

A	Application software
B	Kernel
C	Operating system
D	Format software

22. Any instruction to be processed by the CPU must be broken down to correspond to the

A	ALU
B	Instruction set
C	Program
D	Instruction cycle

23. The method used by organization to completely do away with the old system to use a new system is known as implementation

A	Direct
B	Complete
C	Parallel
D	Piecemeal

24. Communication circuits that transmit data in both directions but not at the same time are said to operating in?

A	Simplex mode
B	Half-duplex mode
C	Asynchronous mode
D	Full duplex mode

25. A software that can convert codes written by programmers into machine code is:

A	Defragmenter
B	Operating system
C	Application software
D	Compiler

26. A design method that uses successive improvement on a model to arrive at the desired result is:

A	iteration
B	simulation
C	prototyping
D	SDLC

27. The protocol that defines the process of requesting and transferring HTML webpages across the internet is?

A	FTP
B	TCP
C	HTTP
D	POP3

28. Which of the following is a utility software?

A	Compression software
B	Operating System
C	DBMS
D	Word processor

29. The process that programmers take to eliminate error in a code is known as?

A	Debugging
B	Syntax
C	Simulation
D	Prototyping

30. Which of the following enables the monitor to display images?

A	Motherboard
B	Monitor viewer
C	Video controller
D	Video player

31. Consider the sentence below:

John is a boy

The HTML statement for the sentence is:

A	John is a <i> boy</i>
B	<i>John is a boy</i>
C	John is a <i> boy </i>
D	John is a <i>boy</i>

32. Which of the following is a pointing device?

A	Touchpad
B	Keyboard
C	Monitor
D	Scanner

33. The equivalence of the Boolean expression NOT(A + B) is

A	$\bar{A} \cdot \bar{B}$
B	$\bar{A} + \bar{B}$
C	$A \cdot \bar{B}$
D	$\bar{A} + \bar{B}$

34. Two students communicating through the internet noticed that the communication speed was slow. The most probable reason

A	Poor computer performance
B	Small RAM size
C	The bandwidth is low
D	The distance of the users is wide

35. The technology that can be used by a teacher to simultaneously deliver live lectures to students in more than one location:

A	Teleworking
B	Distance learning
C	Video conferencing
D	Computer assisted learning

36. The business organization that sells Internet access to people is known as:

A	ISP
B	Google
C	Microsoft
D	Linux

37. Parts of the same file that are scattered within the hard disk can be arranged to exist together by?

A	Antivirus
B	Operating system
C	Translators
D	Defragmenter

38. Which of the following CANNOT tell the duration of a projects

A	Gantt chart
B	SDLC
C	Critical path analysis
D	PERT

39. The device that selects the path to be taken by network signals as they move from one network to another is:

A	Server
B	Bridge
C	Switch
D	Router

40. A procedure that verifies that a user of a computer system is genuine is called

A	Authorisation
B	Authentication
C	Identification
D	Encryption

41. $1101_2 + 1001_2 =$

A	11010
B	11111
C	10110
D	10101

42. A system that can predict weather condition is called:

A	Transaction processing system
B	Geographic information system
C	Management information system
D	Knowledge based system

43. A user of the internet can be confident that information sent to a friend will only be received by him. This is possible through:

A	Hyper links
B	URL
C	Protocol
D	Packets of data

44. A language that can be used to extract specific information from a database is :

A	Pascal
B	SQL
C	BASIC
D	Query

45. A hardware device that controls access between the Internet and the computer system is:

A	Proxy server
B	Firewall
C	Active switch
D	Router

46. A process that will translate a code written in high level language to a machine code is:

A	Compilation
B	Debugging
C	Decoding
D	Synthesis

47. An advantage of writing codes in machine language is?

A	It needs to be compiled
B	The code executes faster
C	Coding is easier to understand
D	Little memorization is needed.

48. A series of strings that identify a resource by its network location is known as?

A	IP address
B	Website
C	Protocol
D	URL

49. A protocol in which a customer gains access to a company's computer network for malicious intentions is called:

A	Hacking
B	Masquerading
C	phishing
D	Scamming

50. A system that accumulates data for a period of time before processing takes place is called:

A	Transaction system
B	Real-time system
C	Batch system
D	Reservation system

STOP

GO BACK AND CHECK YOUR WORK

- 1.(i) A supermarket uses a computerized stock control system to run its warehouse.
- (h) State the device that can be used to automatically record the items bought by customers. Explain how the items are prepared for the data capture and how the device is used in the process during sales. **(4 marks)**
- (i) Explain how customers can make payments using credit cards. **(2 marks)**
- (j) Give that the invoice table for some transactions stored in the systems is

Product number	Unit price	Product name
A-102	400.00	Oil
A-444	625.00	Mousse
A-303	350.00	Keyboard

Write the SQL statement that will enable you display product number and unit price with a unit price less than 500. **(2 marks)**

- (iv) (a) What is online banking? **(1 mark)**
- (g) Give TWO advantages of online banking. **(2marks)**
- (h) Give TWO drawbacks to the bank for introducing online banking. **(2 marks)**
- (xv) A company is planning to have a video-conference in other to advertise its products.
- (a) State THREE special hardware that can be used during the conference and give a function of each hardware cited. **(3 marks)**
- (b) Give TWO advantages of video conferencing to the company. **(2 marks)**
- (c) Describe TWO communication aspects that affect the speed of communication. **(2 marks)**

- 2.(i)(a) Explain TWO impacts of computer virus to a school information system. **(2 marks)**

- (b) Give TWO ways to protect computers in a school from virus attack. **(2 marks)**
- (c) State two computer health related problems and give measure to prevent each. **(2 marks)**

- (xi) (a) Briefly explain relational database model. **(2 marks)**
- (b) Explain THREE disadvantages of a database management system. **(3 marks)**
- (c) A school intends to create a student record database, state and explain TWO rules from the Data protection Act you would advise the school to comply with **(2 marks)**

- (iii) Give ONE advantage and ONE disadvantage of each of the following printers:

- (a) Laser printer **(2 marks)**
- (b) Inkjet printer **(2 marks)**

- 3.(i) (a) State and explain the functions of ONE sub component in the ALU of the CPU . **(2 marks)**
- (b) State and explain TWO stages of the instruction cycle carried out in the control unit. **(2 marks)**

- (x) An office has four computers. The manager wants to connect the computers in a LAN.
- (d) Name a network device which would be possessed by each computer in order to be connected to the network. **(1 mark)**
- (e) Give TWO reasons why the manager will not prefer a wireless technology. **(2 marks)**
- (f) State and explain a network topology that is suitable to this office. **(2 marks)**
- (g) Explain TWO security measures that should be put in place in the above office to secure such network from authorized access or misuse. **(2 marks)**

- (iii) Study the algorithm given below

Start

Step 1: Input an integer, p.
Step 2: If p is even Step 3:
Step 3: $y \leftarrow 3 + p$
Step 4: else
Step 5: $y \leftarrow -2 + p,$
Step 5: print y.

Stop

- (j) What is the objective of this algorithm? (2 marks)
(k) Draw the flowchart of the algorithm. (2 marks)

- 4.(i) Explain the function of the following in an intranet.

- (a) Firewall. (2 marks)
(b) Switch. (2 marks)

- (ix) An outsourcing software has been produced for your organization.

- (a) Give THREE areas you will use to investigate the effectiveness of the software. (3 marks)
(b) Give TWO importance of outsourcing. (2 marks)

- (x) Give the function og the following in a computer System:

- (a) Bios (2 marks)
(b) Sound Card (2 marks)
(c) Cache Memory. (2 marks)
(d) Motherboard (2 marks)

- 5.(i) (a) What is recursion? (1 mark)

- (b) Give one example of a recursive function. (1 mark)

- (v) Almost all organizations have computer-based information system.

- (a) Give TWO advantages of an information system to a business organization. (2 marks)
(c) Identify and explain the THREE levels of the organizational hierarchy. (3 marks)

- (viii) A software development schedule is shown in the table below.

Task	Description	Duration(Working days)	Predecessor(s)
A	Requirement Analysis	5	-----
B	Systems Design	15	A
C	Programming	25	B
D	Telecoms	15	B
E	Hardware Installation	30	B
F	Integration	10	C, D
G	System Testing	10	E, F
H	Training/Support	5	G
I	Handover	5	H

- (a). Draw the PERT chart for this project. (4 marks)
(b). Determine the critical path of this project. (2 marks)
(c). Give TWO slack tasks, stating their slack times. (2 marks)
(d). Give TWO characteristics you will use to determine that a project was good. (2 marks)

- 6.(i) (a) Define cloud computing and dedicated server. (2 marks)
 (b) Give THREE advantages of cloud computing has over dedicated server. (3 marks)
- (vii) Explain each of the following computer crimes and give a method to prevent each:
 (c) Hacking. (2 marks)
 (d) Spam. (2 marks)
 (e) Spyware. (2 marks)
- (viii) (a) Copy and complete the table below by stating either the software type or give an example.
- | No | Software type | Example |
|----|---------------------|----------|
| 1 | | |
| 2 | General purpose | |
| 3 | | Recycler |
| 4 | Language translator | |
- (b) Explain the functions of the operating System during managing memory. (4 marks)
-
- 7.(i) (a) Give TWO effects of increasing the resolution or the number of pixels of a digital Camera, (2 marks)
 (b) What is automatic input devices and give two examples. (2 marks)
- (vi) To send documents, companies sometimes use emails or post office.
 (a) Give two advantages of using e-mails over post office. (2 marks)
 (b) Give two reasons why post office might be preferable. (2 marks)
 (c) Brandon has just bought a laptop computer. Give TWO requirements needed to enable him send and receive e-mails using laptop. (2 marks)
- (iii) (a) Give THREE ways in which a System analyst can gather information to design a new system for an organization. (3 marks)
 (b) One of the phases of the SDLC is design. List all the phases of the SDLC in chronological order. (2 marks)
 (c) State TWO activities carried out in the design phase of the SDLC. (2 marks)
-
- 8.(i) A digital System is described by the equation $F = \overline{A} \cdot \overline{B} + A \cdot B$
 (a) Construct the truth table of the system (2 marks)
 (b) Use De Morgan's theorem to simplify $(\overline{\overline{A} \cdot \overline{B}} + \overline{A \cdot B})$ (2 marks)
- (ii) A company uses relational database for its business transactions.
 (a) Give TWO advantages of relational database over flat file system. (2 marks)
 (b) Give TWO criteria you will use to determine if a table is in the First Normal Form (INF). (2marks)
 (c) Give THREE functions of a Database Administrator of this company. (3 marks)
- (iii) (a) What is an algorithm? (1 mark)
 (b) Describe ONE way to represent an algorithm (2 marks)
 (c) Write an algorithm to calculate and display the sum of three numbers. (3 marks)
-

TASK A (DATABASE: 24 MARKS)

You will be asked to create a database by importing tables from a workbook found in your candidate folder.

After importing the tables, you will then proceed to carry out other database activities.

The information is about sales recorded by an online supplier of goods to customers in some towns in Cameroon.

Procedure to import tables from a workbook into a database.

- Create a Database named **Business** and save it in your candidate folder.
 - Right click on the default table named *Table 1* found on the left pane of your database window and select Excel through the *Import* option to browse to the Excel file named **OnlinePurchase** in the candidate folder and click **OK**.
 - Select the **Item** sheet in the *Show Worksheet* window and click **Next**.
 - In the next step, ensure that the box on the *First Row* containing Column Headings is checked and click **Next**.
 - Skip the step that demands modifying data type by clicking **Next**.
 - In the next window, select the *No primary key* option. This will be done after the import.
 - Click **Finish** to end the import.
- Verify that a table named **Item** is added in the table section of the database.
- Follow the same procedure as above to import the **Customer** and **Purchase** tables. **(6 marks)**

Database activities.

- List all the attributes of the three tables.

Customer	Item	Purchase

(2 marks)

- Complete the table below by stating the field names and data types of the **Item** table.

Field Name	Data type

(1 mark)

- Identify the primary keys of the **Item** and **Customer** tables.

Primary key of Item table _____

Primary key of Customer table _____ **(2 marks)**

- State the foreign key(s) of the database. _____ **(1 mark)**

- Insert the primary keys in the tables of the database. **(1 mark)**

- By studying the entities and their attributes, draw the E-R diagram for the database. **(3 marks)**

- Create the relationship of the three tables in your database. **(2 marks)**

- Create a query that will display the complete information (of all the fields) in one table and including a calculated fields named *TotalPrice*; which is the product of *UnitPrice* and *Quantity*. **(3 marks)**

The fields should be in the order: SN, Name, Town, ItemCode, ItemName, UnitPrice, Quantity, TotalPrice.
Save the query as **BroadSheet**.

Write down the Expression you have used in the *TotalPrice* field in the line below

9. Create a query to display items bought by inhabitants of Yaounde, Douala and Buea where the number of items is less than 19. (3 marks)

Save the query as ***BestCustomers***.

Print the following: Customer, Broadsheet, BestCustomers

TASK B: (SPREADSHEET: 23 MARKS)

This task is based on the **OnlinePurchase** workbook found in your candidate folder.

Open the **OnlinePurchase** workbook found in your candidate folder. **Broadcast**

- 1) Copy the names in the Customer sheet to the *Name* field in the General sheet. (2 marks)
- 2) Merge the two cells B22 and C22; containing the word TOTAL. (2 marks)
- 3) Format Row 22 so that row height becomes 35 pixels, font size is 22 and bold. (2 marks)
- 4) Insert border to all the cells in the range A1:E22. (2 marks)
- 5) Use a light grey colour to fill the field headers, A1:E1 (1 mark)
- 6) Insert a formula in cell E2 that computes the total price by multiplying the *Quantity* by the *Unit Price* for each item which is found in the Item sheet. Use the hint below to complete the formula.

=IF(C2= "S1", D2*Item!C\$2,...

Write down the formula in cell E2 in the line below.

(4 marks)

- 7) Calculate the totals along row 22 in the D and E columns.

Write down the formula in cell E22 in the line below.

(1 mark)

- 8) Insert a vertical bar chart of *ItemCode* against *Quantity*. (2 marks)

- 9) Set the title of Chart to *Sales* name the horizontal axis as *Item code* and vertical axis as *Total Price*, Move the bar chart to the area just below the table so that it prints on the same page as the table. (3 marks)
- Save the workbook and print the *BroadCast* sheet only**