CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

0795 COMPUTER SCIENCE 1

JUNE 2017   **ADVANCED LEVEL**

Centre Number	
Centre Name	
Candidate Identification No.	
Candidate Name	

Mobile phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "0795 Computer Science 1 - Advanced Level"
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil: **Candidate Name, Exam Session, Subject Code and Candidate Identification Number.** Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instruction.

How to answer the questions in this examination

6. Answer **ALL** the 50 questions in this Examination. All questions carry equal marks.
7. Each question has FOUR suggested answers: **A, B, C** and **D.** Decide on which answer is appropriate. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.

   For example, if **C** is your correct answer, mark C as shown below:

   [A] [B] [C̶] [D]

8. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
9. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
10. Do all rough work in this booklet using the blank spaces in the question booklet.
11. **At the end of the examination, the invigilator shall collect the answer sheet first and the question booklet. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH ANY.**

1. A three input NOR gate gives a logic high output only when
   A One input is high
   B One input is low
   C Two input are low
   D All input are low.

2. The binary form of 77.25_{10} is
   A 1001101.01
   B 1001101.001
   C 10110010.10
   D 10110010.11

3. In memory hierarchy, the larger the memory the
   A Higher the access time and the higher the speed of transfer of data to CPU
   B Higher the access time and the lower the speed of transfer of data to CPU
   C Shorter the access time and the higher the speed of transfer of data to CPU
   D Shorter the access time and the lower the speed of transfer of data to CPU.

4. Dynamic RAM, as opposed to Static RAM, is generally used as main memory in a computer system because it
   A consumes acceptable power
   B has higher speed
   C has lower cell density
   D needs refreshing in circuitry.

5. -27^{10} can be represented in a signed magnitude format and in a 1's complement format as
   A 111011 & 100100
   B 100100 & 111011
   C 011011 & 100100
   D 100100 & 011011.

6. In the Von Neumann machine architecture,
   A Programs are stored in a separate memory from data
   B Both program and data are stored on a disk
   C Programs and data are stored in the same kind of memory
   D Programs are stored in ROM and data in disks.

7. The 2's complement of the binary number 1010 in 6 bits is:
   A 111100
   B 110110
   C 110111
   D 101100.

8. The memory unit that communicates directly with the CPU is called the:
   A Main memory
   B Direct memory
   C Shared memory
   D Auxiliary memory.

9. The equivalence of the Boolean expression:
   $z = x(\bar{x} + \bar{y})$ is
   A $z = x(xy)$
   B $z = \bar{x}\, y$
   C $z = x\,\bar{y}$
   D $z = x(\overline{xy})$

10. The circuit used to memorize one bit of data is known as a/an
    A Register
    B Encoder
    C Cell
    D Flip-Flop.

11. What is the characteristic of the RAM that makes it suitable to manage processes in memory?
    A It is volatile
    B It is small in size
    C Its access is direct
    D Its information can be overwritten.

12. Memory management is necessary because
    A The memory is finite
    B Many programs have to run simultaneously
    C Free memory space has to be relaocated
    D All of the above.

13. The Shortest Job First is a process scheduling strategy which is:
    A Pre-emptive
    B Non-pre-emptive
    C Free memory space has to be reallocated
    D Suitable in batch processing.

14. Analysis which determines the meaning of a statement once its grammatical structure is correct is known as
    A Syntactic analysis
    B Semantic analysis
    C Grammatical analysis
    D Lexical analysis.

15. A technique that allows for the execution of a program that is not entirely in memory is known as:
    A Demand paging
    B Fixed partitioning
    C Swapping
    D Pooling.

16. The scheduling algorithm in which the CPU is allocated to the process with the least CPU-burst time is called
    A Priority scheduling
    B Round Robin
    C Shortest Job First
    D First-Come-First-Served.

17. It is not a direct or indirect advantage of distributed systems.
    A Resource sharing
    B Reliability
    C Incremental growth
    D None of the above.

18. Nested sub-program call-returns are invoked using a
   A First-in-First-out approach
   B Round Robin approach
   'C Last in first out approach
   D Last in last out approach.

19. Which of the following is **NOT** characteristic of a relational database model?
   A Tables
   B Tree like structure
   C Complex logical relationships
   D None of the above.

20. A program parameter that can be modified by all subprograms that make reference to it is known as a/an:
   A Local variable
   B Global variable
   C Formal parameter
   D Actual parameter.

21. Given the algorithmic statements below
   If (A > N) or (B< 0), then
   $A \leftarrow A+1$
   $B \leftarrow B-1$
   Else
   $A \leftarrow B+N$
   Endif
   The statement $A \leftarrow B+N$ is only executed
   A When $A \geq N$ or $B \leq 0$
   B When $A \geq N$ or $B < 0$
   C When $A \geq N$ and $B \leq 0$
   D When $A \geq N$ A and $B < 0$.

22. If a software piece can be used either alone or together with other software pieces to produce a more sophisticated software, the software piece is said to be
   A Adaptable
   B Manageable
   C Reusable
   D Predictable

23. The popular expression *"Divide-And-Conquer"* refers to a kind of
   A Top-down design
   B Object oriented design
   C Algorithmic design
   D Modular design

24. A software is said to be portable if
   A It can be put on a CD-ROM
   B It can be installed in any computer
   C It is installable on more than one computer
   D It is platform independent

25. What data structure will you most likely see in a non-recursive implementation of a recursive algorithm?
   A A stack .
   B An array
   C A record
   D Queue

26. A search technique for direct item access is
   A Binary search
   B Linear search
   C Binary tree search
   D Hash table search

27. The smallest element of an array's index is called its
   A Lower bound
   B Upper bound
   C Range
   D Limit.

28. The Worst case occurs in linear search algorithms when an item is:
   A Somewhere in the middle of the array
   B Not in the array at all
   C The last element in the array
   D The last element in the array or is absent.

29. One of the following is a recursive definition of the Fibonacci series.

   A $\begin{cases} f_0 = 0 \\ f_1 = 1 \\ f_n = f_{n-1} + f_{n-2} \end{cases}$

   B $\begin{cases} f_0 = 0 \\ f_1 = 1 \\ f_n = n * f_{n-2} \end{cases}$

   C $\begin{cases} f_n \leftarrow 1 \\ for\ x \leftarrow 1\ to\ n\ Do \\ f_n \leftarrow f_n * x \end{cases}$

   D None of the above

30. Which of these sort algorithms divides, at each iteration, the list into two sub-lists so that one is sorted and the other unsorted?
   A Quick sort
   B Insertion sort
   C Bubble sort
   D Merge sort

31. When a subroutine is called, the address of the instruction following the CALL instruction is stored in/on the:
   A Stack pointer
   B Accumulator
   C Program counter
   D Stack

32. In object-oriented programming, an object is
   A One instance of a class
   B Another word for a class
   C A class with static method
   D A method that accesses a class.

33. In general a low level language program
   A Makes more system calls than a high level language program
   B Makes use of stacks quite often
   C Has more lines of code for same program than a high level language
   D Gives more accurate results than high level language.

34. In computability theory, a problem is said to be computable if:
   A Any kind of solution can be found
   B The problem is a mathematical problem
   C The problem has a feasible solution
   D The problem is a classical computing problem.

35. When implementing recursive programs we use
   A An implicit program stack.
   B A programmer-managed stack
   C No program stack
   D Queues.

36. Prototype refinement is
   A Giving a prototype enough functionality such that it becomes the final product
   B Improving a prototype's functionality so that they are closer to the final product
   C Eliminating errors from a conceptual model
   D Developing a logical model from a conceptual one.

37. In a mesh network topology
   A A computer is connected to all other computers via the internet
   B A computer is connected to all other computers with the help of switches
   C A computer is connected to all other computers directly
   D A computer is connected to all other computers via other computers.

38. Any system generally used for real time applications is known as:
   A An online information system
   B An information system
   C An information retrieval system.
   D An embedded system.

39. It is NOT a measure for data security
   A Locking up work premises after work
   B Introducing logins and passwords
   C Storing data in many places and copies
   D Updating a database regularly.

40. It is a computer crime to
   A Publish someone else's picture on the internet
   B Copy someone else's publication
   C Open a pornographic website
   D Copy copyrighted material.

41. Viruses are an issue of network
   A Reliability
   B Feasibility
   C Security
   D Performance.

42. The number of connections in a full mesh topology that has n devices is given by
   A $\dfrac{n(n-1)}{2}$
   B $\dfrac{(n+1)(n-1)}{2}$
   C $\dfrac{n(n+1)}{2}$
   D $\dfrac{(n-1)(n-2)}{2}$

43. The main function of a browser is to
   A Compile HTML
   B Interpret HTML
   C Decompile HTML
   D Transfer HTML.

44. The concept by which we apply existing operations to new data types is
   A Inheritance
   B Polymorphism
   C Encapsulation
   D Prototyping.

45. If the state of a database no longer reflects a real life state the database is supposed to capture, then such a database state is said to be
   A Consistent
   B Durable
   C Parallel
   D Inconsistent.

46. Recursive algorithms use a
   A Divide-and-conquer approach
   B Modular approach
   C Structural approach
   D Hierarchical approach.

47. The benefit of prototyping is:
   A Missing functions of the user can be identified
   B Misunderstanding between software developer and user can be identified
   C Incomplete or inconsistent user requirements may be detected.
   D All of the above.

48. A database table is in 3rd normal form if
   A It is in 2nd normal form (2NF) and in 1st normal form(1NF)
   B It is in 2NF and all non-key fields depend on all key fields
   C It is in 2NF and all non-key fields depend only on the key
   D It is in 2NF and all non-key fields may depend indirectly on all key fields.

49. Given the relations CLASS(ClassID, Cycle, Teachinghours) and STUDENT(StudentID, ClassID, StudName). What is the possible relation between STUDENT and CLASS?
   A A class must have at least a student.
   B A student must have a class
   C A student may have no class
   D A class may have no students.

50. When requirements analysis goes wrong, what could happen?
   A The system may cost more than projected.
   B The system will become unreliable
   C The system may not meet user requirements
   D All of the above.

STOP

GO BACK AND CHECK YOUR WORK