

# GENERAL CERTIFICATE OF EDUCATION (GCE) BOARD

General Certificate of Education Examination

## 0795 COMPUTER SCIENCE 1

JUNE 2021

ADVANCED LEVEL

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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 "Advanced Level – 0795 Computer Science 1"
4. Fill in the information required in the spaces above.
5. Fill 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 correct. 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] [**C**] [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 IT.**

Turn over

JUNE 2021/795/1/C/MCQ

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1. An information system that processes instructions immediately as they arrive is termed
  - A Batch processing System
  - B Geographical Information System
  - C Management Information System
  - D Real-time information System

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2. In SDLC, the collection of information by means of interviews, questionnaires, observation and inspection of documents is an activity in
  - A System Analysis
  - B System Design
  - C System investigation
  - D Information requirement

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3. When a code is compiled the outcome is known as:
  - A Source code
  - B Object code
  - C Output
  - D Executable code

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4. In designing a database, which diagram is used to represent real world situation into forms that can be understood by the DBMS
  - A Structural Analysis Diagram
  - B Entity-Relationship Diagram
  - C Data flow Diagram
  - D Design tool Diagram

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5. How many computers can be used if we have 15 cables to put in a fullmesh topology?
  - A 5
  - B 4
  - C 6
  - D 10

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6. A conversion method in which other modules are added incrementally is known as :
  - A Direct
  - B Parallel
  - C Piecemeal
  - D pilot

---

7. In the extended ASCII code. How many bits do we need to represent the word COMPUTER?
  - A 64
  - B 72
  - C 56
  - D 48

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8. Which activity is done at every stage of the SDLC?
  - A Coding
  - B Design
  - C Analysis
  - D Documentation

---

9. The Complexity of an algorithm is measured in terms of
  - A Operations and variables
  - B Loops and control Structures
  - C Time and space
  - D Number of lines of code

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10. An example of a universal gate
  - A AND
  - B OR
  - C NOR
  - D XOR

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11. Another name for a record in a database is :
  - A A field
  - B A tuple
  - C A relation
  - D An entity

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12. The \_\_\_ locates and executes program instructions, carries out arithmetic operations, and fetches data from storage and input devices
  - A RAM
  - B Register
  - C Processor
  - D Cache

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13. If the capacity of a disc is 25GB, how many CDs can be used to store this quantity given that one CD has a capacity of 700MB?
  - A 36.57
  - B 36
  - C 37
  - D 36.75

---

14. If the processor is executing a main program that calls a subroutine, then after executing the main program up to the CALL instruction, the control will be transferred to the:
  - A Address of main program.
  - B Subroutine address.
  - C Address of the CALL instruction.
  - D Address of data.

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15. Which of the following allows many users to use the computer simultaneously?
  - A Time Sharing operating system.
  - B Real Time operating system.
  - C Interactive operating system.
  - D Batch operating system.

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16. One of the following is NOT a memory performance parameter:
  - A Access time.
  - B Cycle time.
  - C Transfer rate.
  - D Time location.

---

17. Given that a node with two leaf nodes as children is deleted from a binary search tree, which node best replaces it in a strictly post-order tree transversal?
  - A In order predecessor.
  - B Post order successor.
  - C Pre order predecessor.
  - D Post order predecessor.

---

18. A mathematical model with a collection of operations defined over its values is called:
  - A Data Structure.
  - B Abstract Data Type.
  - C Primitive Data Type.
  - D Algorithm.

- 
19. A complete binary tree with  $2n+1$  nodes contains:  
 A N leaf nodes.  
 B N non-leaf nodes.  
 C  $N-1$  leaf nodes.  
 D  $N-1$  non-leaf nodes.
- 
20. A sort which searches through a list to exchange the first element with any element less than it and then repeats with a new first element at subsequent positions is called:  
 A Insertion sort.  
 B Selection sort.  
 C Bubble sort.  
 D Quick sort.
- 
21. The data structure required to evaluate a postfix expression is:  
 A Stack.  
 B Queue.  
 C Tree.  
 D Array.
- 
22. The feature of the object oriented paradigm which explicitly helps code reuse is:  
 A Object  
 B Class.  
 C Inheritance.  
 D Aggregation.
- 
23. The main advantage of a multiprogramming system is:  
 A More than one job can be processed at a given time.  
 B CPU utilization can be increased.  
 C Jobs can be completed faster.  
 D All of the above.
- 
24. An object encapsulates:  
 A Data.  
 B Behaviour.  
 C State.  
 D Data and behaviour.
- 
25. If a program in its functioning has not met user requirements in some way, then it is:  
 A An error.  
 B A failure.  
 C A fault.  
 D A defect.
- 
26. Which of the following is not true of a stack?  
 A Ordered list of similar data type  
 B Overflow state when completely full and underflow state when completely empty  
 C Allows push() and pop() functions  
 D Both push() and pop() are done at both front and rear simultaneously
- 
27. Dequeue() operation is best known as:  
 A Adding an element into a queue  
 B First in first out structure  
 C Removing an element from a queue  
 D Tail of a queue
- 
28. If there are no base cases in a recursive program, the program will:  
 A Not be executed  
 B Be executed until all conditions match  
 C Execute indefinitely  
 D Not execute the non-base cases
- 
29. Which of the following is true of the characteristics of abstract data types?  
 i. A type  
 ii. A set of operations  
 A True, False  
 B False, True  
 C True, True  
 D False, False
- 
30. Which of the following data structures can't store the non-homogeneous data elements?  
 A Arrays  
 B Records  
 C Pointers  
 D Stacks
- 
31. It is a non-linear data structure?  
 A Stacks  
 B List  
 C Strings  
 D Trees
- 
32. The number of comparisons done by a sequential search is?  
 A  $(N/2)+1$   
 B  $(N+1)/2$   
 C  $(N-1)/2$   
 D  $(N+2)/2$
- 
33. What will be the output in the following code fragment?  
 integer k;  
 for(k=0;k>9;k+=3){  
 DISPLAY ("Hello");  
 }  
 A Nothing prints  
 B Hello  
 C Hello Hello Hello  
 D Hello Hello
- 
34. The postfix form of the expression  $(A+B)*(C*D-E)*F/G$  is?  
 A  $AB + CD * E - FG / **$   
 B  $AB + CD * E - F ** G /$   
 C  $AB + CD * E - * F * G /$   
 D  $AB + CDE * - * F * G /$
- 
35. Virtual memory is:  
 A An extremely large memory  
 B An extremely large secondary memory  
 C An illusion of an extremely large memory  
 D None of the above
-

36. Concurrent processes are:
- A Processes that do not overlap in time.
  - B Processes that overlap in time.
  - C Processes that are executed by a processor at the same time.
  - D None of the above.
- 
37. Fragmentation is:
- A Dividing the secondary memory into equal sized fragments.
  - B Fragments of memory words used in a page.
  - C Fragments of memory words unused in a page.
  - D None of the above.
- 
38. A set of instructions that access common shared resources and exclude one another in time is best referred to as:
- A Critical region.
  - B Deadlock.
  - C Mutual Exclusion.
  - D Process blocking.
- 
39. A key concept of quality control is that all products worked on:
- A Are delivered on time and within budget.
  - B Have complete documentation.
  - C Have measurable specifications for process outputs.
  - D Are thoroughly tested before delivery to the customer.
- 
40. Which of the following data structures is used to hold jobs waiting to be run by the computer?
- A Binary tree.
  - B Queue.
  - C Stack.
  - D Linked list.
- 
41. The term module in the design phase of program development refers to:
- A Functions.
  - B Procedures.
  - C Sub programs.
  - D All of the above.
- 
42. Which of the following is also known as a pre-order traversal of a binary tree where a given Node, has children Left and Right
- A Left, Node, Right.
  - B Node, Right, Node.
  - C Node, Right, Left.
  - D None of the above.
- 
43. In software engineering projects, what is informally called "SOFTWARE" consists of a:
- A Set of instructions + operating procedures.
  - B Programs + documentation + operating procedures.
  - C Programs + hardware manuals.
  - D Set of programs.
- 
44. Given that the state of the database no longer reflects a real state of the world that the database is supposed to capture, then such a state is called a(n).
- A Consistent state.
  - B Parallel state.
  - C Durable state.
  - D Inconsistent state.
- 
45. Given that if objects focus on real world entities of interest then we must be concerned with:
- A Object Oriented Analysis.
  - B Object Oriented Design.
  - C Object Oriented Analysis & Design.
  - D None of the above.
- 
46. A linear collection of data elements where the next node is given by means of a pointer is called:
- A Node list.
  - B Linked list.
  - C Primitive list.
  - D None of the above.
- 
47. Software deteriorates rather than wears out because:
- A Software suffers from exposure to hostile environments.
  - B Defects are more likely to arise after software has been used often.
  - C Multiple change requests introduce errors in component interactions.
  - D Software spare parts become harder to order.
- 
48. A main technique to make a software package portable is to:
- A Isolate system dependent components.
  - B Increase the overall performance.
  - C Have an independent platform for the software.
  - D Have a dependent platform for the software.
- 
49. In system design, we do the following:
- A Hardware design after software design
  - B Software design after hardware design
  - C Parallel hardware and software design.
  - D No hardware design needed.
- 
50. A factor in selection of a source language for program development is:
- A Programmer skill.
  - B Language availability.
  - C Program compatibility with other software.
  - D All of the above.

**STOP**

**NOW GO BACK AND CHECK YOUR WORK**