

RÉPUBLIQUE DU CAMEROUN

Pais-Travail-Patrie

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MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR

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COMMISSION NATIONALE D'ORGANISATION DE L'EXAMEN

HIGHER NATIONAL DIPLOMA EXAM (HND)

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REPUBLIC OF CAMEROON

Peace-Work-Fatherland

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MINISTRY OF HIGHER EDUCATION

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NATIONAL COMMISSION FOR THE ORGANISATION OF

HIGHER NATIONAL DIPLOMA EXAM (HND) EXAM

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National Exam of Higher National Diploma 2023 Session

Specialty/Option: SOFTWARE ENGINEERING (SWE)

Paper: Computer Technology

Duration: 4 Hours

credit:6

ANSWER ALL QUESTIONS

SECTION A: MCQS(40 marks)

Each question carries One (01) mark.

1- Which of the following programming language is whitespace insensitive?

- a: HTML
- b. CSS
- c. PHP
- d. JAVASCRIPT

2- How many layers does OSI Reference Model has?

- a. 4
- b. 5
- c. 6
- d. 7

3- DHCP is the abbreviation of

- a. Dynamic Host Control Protocol
- b. Dynamic Host Configuration Protocol
- c. Dynamic Hyper Control Protocol
- d. Dynamic Hyper Configuration Protocol

4- An example of Private IP address is:

- a. 10.2.5.8.9
- b. 6 195.25.87.96

- c. 204.14.88.96
- d. 173.29.178.661

5- An example of Public IP address is:

- a. 10.2.5.8.9
- b. 192.168.87.96
- c. 204.14.88.96
- d. 172.29.178.66

6- SNMP protocol means:

- a. Simple Network Mail Protocol
- b. System Network Management Protocol
- c. simple Network Management Protocol
- d. All above

7- The language used in application programs to request data from the DBMS is referred to as the:

- a. DML
- b. DDL
- c. VDL
- d. SDL

8- `int Z,x=5,y=10,a=4,b=2; z=x++ - --y*b/a;`

What number will z in the sample code above contain?

- a.
- b. 5
- c. 6
- d. 10
- e. 11

9- With every use of a memory allocation function, what function should be used to release allocated memory which is no longer needed?

- a. dropmem()
- b. dealloc()
- c. release()
- d. free()

10- What function will read a specified number of elements from a file?

- a. fileread()
- b. readfile()
- c. fread()
- d. gets().

11-What is a difference between a declaration and a definition of a variable?

- a. Both can occur multiple times, but a declaration must occur first.
- b. There is no difference between them.
- c. A definition occurs once, but a declaration may occur many times.
- d. A declaration occurs once, but a definition may occur many times.

12- What is a proper method of opening a file for writing as binary file?

- a. FILE *f= fwrite(--test.binl, ---bl);
- b. FILE *f= fopenb(--test.binl,--wl);
- c. FILE *f= fopen(--test.binl, --wbl);
- d.- FILE *f= fopen(--test.binl, --bwl); [Ans]

13-A collection of hyperlinked documents on the internet forms the:

- a. World Wide Web (WWW)
- b. E-mail system
- c. Mailing list
- d. Hypertext markup language

14-A proxy server is used as the computer?

- a. with external access
- b. acting as a backup
- c. performing file handling
- d.* accessing user permissions

15- Which one of the following would breach the integrity of a system?

- a. Locking the room to prevent theft
- b. Full access rights for all users
- c. Fitting the system with an anti-theft device
- d. Protecting the device against willful or accidental damage

16- Which software prevents the external access to a system?

- a. Firewall
- b. Gateway

- c. Router
- d. Virus checker

17- Where is linear searching used?

- a. When the list has only a few elements
- b. When performing a single search in an unordered list
- c. Used all the time
- d. When the list has only a few elements and When performing a single search in an unordered list

18- What is the best case for linear search?

- A . $O(n \log n)$
- b. $O(\log n)$
- C. $O(n)$
- d. $O(1)$

19- Which of the following is a disadvantage of linear search?

- a. Requires more space
- b. Greater time complexities compared to other searching algorithms
- c. Not easy to understand
- d. Not easy to implement

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21- Which of the following concepts make extensive use of arrays?

- a. Binary trees
- b. Scheduling of processes
- c. Caching
- d. Spatial locality

22-Assuming int is of 4bytes, what is the size of `int arr[15];`?

- a. 15
- b. 19
- c. 11

d. 60

23-The data structure required for Breadth First Traversal on a graph is?

- a. Stack
- b. Array
- c. Queue
- d. Tree

24-Cartesian product in relational algebra is

- a. Binary operator
- b. Unary operator
- c. Ternary operator
- d. Not defined

25- The view of total database content is:

- a. Conceptual view
- b. Internal view
- c. Physical view
- d. External view

26- Architecture of a database can be viewed as:

- a. One level
- b. Two levels
- c. Three levels
- d. Four levels

27-Database schema is written in:

- a. DML
- b. HCL
- c. DDL
- d. DCL

28- Which technique is used for data protection?

- a. Data piracy
- b. Authentication
- c., Encryption
- d. None of these

29-Coaxial cables used in_ networks

- a. Telephone
- b. Cable TV
- c.- Both A and B
- d. NONE OF these

30-Optical Fiber transmit_

- a. light signal
- b. radio signal
- c. electrical signal
- d. Both A and B

31-HTTP port number used is

- a.-43
- b. 441
- c. 443
- d. 449

32- In the handshake protocol which is the message type first sent between client and server?

- a. server hello
- b. client hello
- 3. hello request.
- d. certificate request

33-Inside which HTML element do we put the JavaScript?

- a.<js>
- b.<javascript>
- c.<scripting>
- d.. <script>

34- Which one is not a programming language?

- a. HTML
- b. CSS.
- c. JavaScript
- d. PHP

35- Which one is a method of inserting a style sheet?

- a. Inline style sheet

- b. External style sheet
- c. Internal style sheet
- d. All above

36-An example of a variable declaration in JavaScript:

- a. Sa;
- b. Var a;
- c. Variable a;
- d. None above

37- An example of a variable declaration in PHP:

- a. Sa,
- b. Var a;'
- Variable a;
- d. None above

38-The RSA signature uses which hash algorithm?

- a. MDS
- b. SHA-1
- c. MD5 and SHA-1
- d. None of the mentioned

39-Choose the function of a router

- a. changing the data from one format to another
- b. error detection in data
- c. send the packet to the uplinks
- d. None of the above

40- Which utility used, If you want to find the number of routers between a source and destination.

- a. route
- b. Traceroute
- c. Ifconfig
- d. Ipconfig

SECTION B: QUESTIONS/ANSWERS (60marks)

A Programming (20marks)

1) What is a Programming Paradigm?

(2marks)

- 2) Is it true that Operating Systems like Windows, Linux and UNIX are written in C? (2marks)
- 3) What do you mean by scope of a variable? What are the different types of scopes that a variable can have? (2marks)
- 4) Which of the following statement is a declaration and which is a definition?
extern int i; int j=0; (2marks)
- 5) What are the differences between a declaration and a definition? (2marks)
- 6) Is it true that a global variable may have several declarations, but only one definition?
[Yes/No] (2marks)
- 7) Is it true that a function may have several declarations, but only one definition?
[Yes/No] (2marks)
- 8) When we mention the prototype of a function we are defining the function or declaring it? (2marks)
- 9) If you are to share the variables or functions across several source files, how would you ensure that all definitions and declarations are consistent? (2marks)
- 10) Global variables are available to all functions. Does there exist a mechanism by way of which I can make it available to some and not to others? (2marks)

B. Database (15 Marks)

- 1) Differentiate Table Scan from Index Scan. (4 marks)
- 2) List some commands of DDL. (4 marks)
- 3) Why is group-clause used? (3 marks)
- 4) What are the various kinds of interactions catered by DBMS? (4 marks)

C. Networking (15 marks)

- 1) What is OSI and what role does it play in computer networks? (3 marks)
- 2) What is the purpose of cables being shielded and having twisted pairs? (4 marks)
- 3) One way of securing a network is through the use of passwords. What can be considered as good passwords? (4 marks)
- 4) Name the two data link sublayers and their purposes. (4 marks)

D. Algorithms and Data Structure (10 Marks)

- 1) How to find whether the linked list has a loop? (4 marks)

- 2) Differentiate between best case scenario and worst case scenario of an algorithm. (4 marks)
- 3) Describe the two principal operation that can be performed on a Stack. (3 marks)