**National Exam of Higher National Diploma 2023 Session**

RÉPUBLIQUE DU CAMEROUN

Pais-Travail-Patrie

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**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?

1. 4
2. 5
3. 6
4. 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. Looking 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(nlogn)

b. O(logn)

C. O(n)

d. O(l)

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

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

1. changing the data from one format to another
2. error detection in data
3. send the packet to the uplinks
4. 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)