**UNIT NO.1**

10 long questions

**Q.1) How can you determine the size of an allocated portion of memory?**

#### Q.2) **What is the difference between malloc and calloc?**

**Q.3) What is the purpose of realloc( )?**

#### Q.4) **What is the return value of malloc (0)?**

#### Q.5) **What is a dangling pointer?**

### **Q.6) How can we avoid wild pointers?**

**Q.7) what are the advantages of pointer in c?**

**Q.8) state the Drawbacks of Pointers:**

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## **Q.9)State the advantages and disadvantages of DMA?**

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**Q.10 what is the difference between local and global variable in c ?**

* + 1. MCQ’s

1.The operator used for dereferencing or indirection is \_\_\_\_  
a) \*  
b) &  
c) ->  
d) –>>

2. Which of the following is illegal?  
a) int \*ip;  
b) string s, \*sp = 0;  
c) int i; double\* dp = &i;  
d) int \*pi = 0;

3.With the help of which operator array elements can be accessed?

|  | 1. Parenthesis ( ) |
| --- | --- |
|  | 1. Braces { } |
|  | 1. Subscript Operator [ ] |
|  | 1. None |

4. Which of the following statements correctly declares a two-dimensional integer array in C/C++?

|  | 1. arr[5 \*4] |
| --- | --- |
|  | 1. int arr[5][4]; |
|  | 1. arr[2][2] |
|  | 1. All of these |

5. What is the time complexity to insert a single element in the array?

|  | 1. O(1) |
| --- | --- |
|  | 1. O(n) |
|  | 1. O(log n) |
|  | 1. None |

6. What is the famous mathematical example of 2-d array?

|  | 1. Cube |
| --- | --- |
|  | 1. Dice |
|  | 1. Matrix |
|  | 1. None |

7. If we declare a 2-d array like - int arr[3][4], then it will stored in the format of \_\_\_\_\_

|  | 1. 4 rows 3 columns |
| --- | --- |
|  | 1. 4 rows 4 column |
|  | 1. 3 rows 3 columns |
|  | 1. 3 rows 4 columns |

8. **Choose a correct Syntax for malloc() function to allocate memory to an array at run time.**

**a.**int \*p;  
p = (int\*)malloc(10\*sizeof(int));

**b.**int \*p;  
p = (int\*)malloc(10,sizeof(int));

**c.**int \*p;  
p = (int\*)malloc(sizeof(int), 10);

**d.**int \*p;  
p = (int\*)malloc(10\*sizeof(int \*)

9. **What is the dimension of the below C Array?**

int ary[]={**1**,**3**,**5**,**7**};

**a.**1

**b.**2

**c.**3

**d.**5

10. **Choose a correct statement with array pointers.**

**a.**It is valid to add an integer number to an array pointer. Result can be anything.

**b.**It is valid to subtract an integer number from array pointer. Result can be anything.

**c.**Difference of pointers to two elements of an array gives the difference between their indexes.

**d.**All of the above

11. **What is the output of C Program with arrays?**

int main()

{

int ary[] = {**1**, **3**, **5**};

printf("%d %d", ary[-**1**], ary[**4**]);

**return** **0**;

}

**a.**1 5

**b.**0 0

**c.**Compiler error

**d.**None of the above

###### 12. The address operator &, cannot act on

a) R-values  
b) Arithmetic expressions  
c) Both of the above  
d) Local variables

###### 13. Check whether the condition is correct or not?

int \*\*a;

a) is illegal  
b) is legal but meaningless  
c) is syntactically and semantically correct  
d) None of these

14, What is the data type of the array passed from the command line into the main() function in C?  
a) char arr[];  
b) char \*arr[];  
c) char \*\*arr[];  
d) char arr[][];

15. Which one of the following is not a possible state for a pointer.  
a) hold the address of the specific object  
b) point one past the end of an object  
c) zero  
d) point to a type

16. Choose the statement which is incorrect with respect to dynamic memory allocation.  
a) Memory is allocated in a less structured area of memory, known as heap  
b) Used for unpredictable memory requirements  
c) Execution of the program is faster than that of static memory allocation  
d) Allocated memory can be changed during the run time of the program based on the requirement of the program.

17. Which of the following header files must necessarily be included to use dynamic memory allocation functions?  
a) stdlib.h  
b) stdio.h  
c) memory.h  
d) dos.h

18. What does DMA stand for?

a) Direct Memory Allocation

b) Direct Memory Access

c) Dynamic Memory Allocation

d) Data Management Access

19. DMA is primarily used for:

a) Increasing CPU utilization

b) Managing memory allocation for programs

c) Offloading data transfer tasks from the CPU

d) Reducing overall system performance

20. Which component controls the data movement in DMA transfers?

a) CPU

b) Memory

c) I/O device

d) DMA controller

21.DMA transfers are beneficial because:

a) They increase CPU overhead

b) They reduce CPU involvement in data transfer

c) They limit data transfer speed

d) They increase memory fragmentation

22.Which function is typically used to initialize DMA in C?

a) malloc()

b) dma\_init()

c) initialize\_dma()

d) No specific function, it depends on the hardware and DMA controller

23. DMA transfers can be:

a) Synchronous

b) Asynchronous

c) Serial

d) Parallel

24.DMA transfers are generally faster than CPU-based transfers because:

a) DMA operates at a higher clock speed than the CPU

b) DMA can transfer data in parallel with CPU processing

c) DMA uses a different bus for data transfer

d) DMA requires fewer instructions to perform data transfers

25.Which register in the DMA controller is used to specify the source address of data?

a) Source Address Register

b) Destination Address Register

c) Control Register d) Status Register

26.DMA transfers can occur between:

a) CPU and GPU only

b) CPU and RAM only

c) CPU, RAM, and I/O devices

d) CPU and cache memory only

27.Which interrupt is often used to signal the completion of a DMA transfer?

a) Timer interrupt

b) DMA interrupt

c) CPU interrupt

d) I/O interrupt

28.DMA controllers can be:

a) Integrated into the CPU

b) External to the CPU

c) Both integrated and external

d) None of the above

29.DMA transfers can be classified into different modes. Which of the following is NOT a common DMA transfer mode?

a) Burst mode

b) Cycle-stealing mode

c) Continuous mode

d) Sequential mode

30.Which of the following is a characteristic of DMA transfers?

a) High CPU utilization

b) Low latency

c) Dependency on CPU clock speed

d) Sequential data transfer only

31.Which register in the DMA controller is used to specify the number of bytes to transfer?

a) Control Register

b) Source Address Register

c) Status Register

d) Count Register

32.DMA is commonly used in which of the following applications?

a) Gaming consoles

b) Office productivity software

c) Web browsers

d) Text editors

33.DMA is most beneficial in systems where:

a) CPU usage is a priority over system performance

b) Memory access speed is not critical

c) Large volumes of data need to be transferred between memory and I/O devices

d) System architecture does not support DMA functionality

34.DMA transfers are typically managed by:

a) The CPU

b) The operating system

c) The DMA controller

d) The I/O devices

35.Which of the following is NOT a common disadvantage of using DMA? a) Increased CPU overhead

b) Limited compatibility with certain peripherals

c) Slower data transfer rates

d) Complexity in programming and debugging

36.Which programming language is commonly used for implementing DMA routines?

a) Assembly language

b) C

c) Python

d) Java

37. DMA transfers can be configured to occur:

a) Only during CPU idle times

b) Simultaneously with CPU operations

c) Only when explicitly initiated by the CPU

d) Only after the completion of CPU tasks

**38.** Which of the following statements correctly initializes a pointer to an integer with the address of the integer variable **num**?

a) **int \*ptr = num;**  
b) **int ptr = &num;**  
c) **int \*ptr = &num;**  
d) **int ptr = num;**

**39.** What does the **sizeof** operator return when used with a pointer variable?

a) The size of the data type to which the pointer points  
b) The size of the pointer variable itself  
c) The size of the memory block allocated to the pointer  
d) The size of the memory address

**40.** What is the output of the following code snippet?

#include <stdio.h>

int main() {

int x = 10;

int \*ptr = &x;

printf("%d", \*ptr);

return 0;

}  
a) 0  
b) 10  
c) Error  
d) Garbage value

10 Short questions and Answers

Q.1 Explain the purpose of a DMA pointer.

Q.2How does DMA improve system performance?

Q.3 **How do you access the value pointed to by a pointer?**

**Q.4 What is an array in C?**

Q.5 **How do you use a pointer to access elements of an array?**

Q.6 **What is a null pointer?**

**Q.7 How to assign an address to a pointer?**

Q.8 **What are pointer dangers?**

Q.9 **What is an array of pointers?**

Q.10 **What are the benefits of using arrays of pointers?**

* + 1. one word questions and Answers

Q.1 Stores **address** of what?

Q.2 Special pointer value?

Q.3 Operator to access pointed value?

Q.4 Access elements using **what**?

Q.5 What happens to array name in C?

Q.6 Common use for pointers with arrays?

Q.7 DMA can improve overall system **what**?

**Q.8** What is the header files must necessarily be included to use dynamic memory allocation functions?

Q.9 What is the data types has the size that is variable?

Q.10 What is an indirection operator in pointer?