Adv C Module

1. Subjective

2.1 Basic Refreshers

1. Explain the bitwise operator. Read one position, Read ON then we have to set that position, OFF then we have reset that position

2.2 1D Pointers and Functions

1. (int const *p = &var) what is this? Explain.
2. Why do we use a function pointer?
3. What is a pointer to a constant? Give an example. how can I change the value in the pointer?
4. What is function declaration and function definition?
5. What is a function pointer? write the syntax?
6. What is null pointer and what is the size of it?
7. .Does context switching happen in inline function?
8. What is the reason for the segmentation fault(give an example)?
9. Take a double pointer and print both address and value.
10. unsigned int x=0x12345678; Extract 78 from x using pointer.
11. Explain call by reference and call by reference with an example.
12. Explain different types of pointers. Explain each with an example.
13. What is the use of a pointer, explain with an example.
14. Explain function declaration and function definition.
15. What is the difference between a pointer to const and a const pointer?
16. Can we store the address of a double variable in an integer pointer?
17. What will be the output of the following code?
    (Assume the address of num is 1000)
    int num = 10;

```
int *ptr = &num;
*++ptr;
print("%d",ptr);
*ptr++;
print("%d",ptr);
```

18. Explain recursive function with an example.

2.3 String

1. Where to use an array and where to use strings?

2.5 Storage classes and memory segments

1. Explain storage classes.
2. What are the different types of storage classes in C?
3. Explain about memory segments?
4. Explain different storage classes In C ?
5. How extern variable be linked?
6. How to access the static variable outside the file?
7. Global constant and local constant. give an example.
8. const int a=10; static int b=20; a=50; b=60; what will be the o/p?
9. Difference between static memory and dynamic memory
10. Where memory is allocated for a constant variable?
11. Example for global variable and constant variable(write a code)
12. What is the use of code segment?
13. What is the use of code segment? What is stored in code segment?
14. Why I cannot read a register variable?
15. Explain the difference between local and global variables. Explain all types. Write the code for each to give an example.

2.6 2D pointers and DMA

1. Difference between void and void *.
2. What is NULL pointer.

3. What are the difference between malloc and calloc. Explain with an example program.
4. Write the syntax and example for function pointer, What is need the function pointer.
5. Explain the difference between wild pointer, Dangling pointer, void pointer with an example code.
6. Explain the difference between int (*ptr)[10] , int *ptr [10]

2.7 Preprocessing

1. Explain Compilation Stages in detail.
2. What is conditional compilation? Explain with an example
3. Command to get the intermediate files in compilation?
4. Create a macro to perform addition operation
5. Explain the compilation stages. Tell the commands used to get the outputs of different stages
6. Explain Macro with an example.
7. What is #define #ifdefine, macro. Give an example of a macro.
8. Write a macro to set a bit.
9. what is conditional compilation?
10. Difference between macro and function?
11. Difference between macro and inline functions?
12. What is inline function? Give an example.

2.8 UDT

1. define one union with one char array and inter and define structure day month year with bitfield and define one more structure which contains first name last name and middle name, last structure should have all above structure
2. access different members of the above structure
3. Explain the structure padding.
4. Explain the difference between structure and union.
5. What is bitfield structure? What is the advantage of this?

6. What are the difference between typedef and macros, with an example program.
7. Is it possible to use nested union? If yes explain.

2.8 Miscellaneous

1. Explain volatile keyword in detail with an example

2. Programming

1. WAP to Check whether two files (data) same or not.
2. WAP to read file two file from the command line and append data from file1 to file2
3. one char pointer one 2d array and find out the size of the pointer and size of the total array and the size of the row and one row stored "mike" and ask the length of that row
4. WAP to read start-stop and increment values from the command line as celcius and we have to print all values possible in Fahrenheit while incrementing from start to stop
5. WAP to check bits of a number palindrome or not
6. WAP to read the file count frequency of words and display words alphabetically.
7. WAP to string copy.
8. Write the program to swap two numbers without using 3rd variable using pointers
9. WAP to set, clear, and toggle 4th bit.

MC Module

1. Basics

1. Explain the PIC controller.

2. Interrupts

1. What is an interrupt? List the different types and explain with an example.
2. How does a timer work?
3. Explain the ISR function in detail.
4. difference b/w microcontroller and microprocessor.
5. using timer interrupt blink the led for delay of 50% in total time 100ms.
6. Explain the EEPROM in detail

3. Projects

1. Explain the Car black box project
2. Draw the circuit diagram of car black box project.

4. ADC

1. What is ADC how does it convert analog to digital? how to write a code to do it
2. How do you configure ADC?
3. Explain the significance of different ADC's.
4. How many bit adc you used and how to convert analog to digital.
5. Explain the ADC and how many bit ADC you used

5. Embedded Systems

1. Difference b/w microcontroller and microprocessor
2. Can I configure micro-processor
3. Which controller did you use?
4. What are the peripherals have you worked on?

6. Protocols

1. Explain the configuration of CAN.
2. Explain the communication protocol in detail.
3.
4. Explain the UART Protocol in detail.
5. Explain the I2C and SPI protocol in details.
6. Standard frame format of CAN
7. Types of errors in CAN
8. What is the bit width in uart

9. How do you calculate the speed of the rotating disc using micro controller
10. How actual transmission occurs in uart.
11. Explain I2C Protocol in detail
12. Explain SPI Protocol in detail
13. List the different types of Protocols
14. Explain the LAN protocol in details.
15. Which are the receiver side error and transmitter side error in CAN?
16. Explain the configuration of I2C
17. List out the different types of protocols
18. Want to transmit data of 10 bytes for a distance of 2 to 3 meters. Which protocol can be used?
19. What is frame? Explain it.
20. How the data is transferred in CAN?
21. In I2C how the data is transferred?. Is I2C full duplex or half duplex? Is it a multi-master-slave?
22. Explain working of RTC.

7. PWM

1. What is duty-cycle?

8. programming

1. WAP to toggle the LED

CPP Module

1. Explain the encapsulation in C++ in detail.
2. Difference between the class and structure.
3. Explain the OOPs concept, end explain the 5 pillars of OOPS.
4. Explain the inheritance and its types.
5. Explain the function overloading and overriding.
6. Explain the operator overriding.
7. Explain the vertical functions.

8. Explain the Abtractions.
9. Explain the OOPS in class and object .
10. Definitions of Polymorphism.
11. Qualifiers and modifiers
12. Exception handling in c++ with example

Ds Module

1. Basics

1. What is use of data structure.
2. Explain the use of makefile.
3. How to create the makefile in detail.

2. Linked lists

1. Explain the double-linked list insertion and traversal.
2. WAP to check the circular linked list or not.
3. Explain the linked list and its

3. Stack

1. Explain the stack in detail.
2. Explain the stack application in detail.
3. Explain the difference between the infix, postfix, and prefix

4. Searching and Sorting Technique

1. Explain the search algorithms.
2. Explain the linear search.
3. Explain the binary search.
4. Explain the sorting technique in the array

5. Queue

1. Explain the Nqueue and Dqueue in detail.

6. Trees

1. Write a program to find the leftmost element of each level of a BST

7. Hashing

1. Explain the hash table creation in detail.
2. What is a Binary search tree? Give real-time examples

LI Module

1. Basics

1. Explain the booting sequence.
2. Basic Linux commands How the scheduling will work.
3. Explain the round-robin scheduling.
4. What is virtual memory?
5. How to make the Slow computer to become faster.

2. System call

1. Mention all system calls that you know.
2. Explain the fork system call in detail.
3. Explain the use of time system call.
4. Explain the difference between the system call and function.
5. a file contains the following text :
   Name: linux123 Status:
   Active Name: ubuntu
   Status: not active
   Name: 33linux55
   Status: not active
   ...
   ...
   ...
   Write a program to read the file and only display the names and status of the users whose name contains the word 'Linux'.

3. Process

1. Explain the fork and its use.
2. What is the use of the exec system call? And its variants.

3. WAP to make your system hang.
4. Explain the process in detail.
5. Explain the zombie process in detail.
6. How will you print a PID of a process with only knowing only it's process name.

4. IPC

1. What is the use of pipe?
2. How to communicate using a pipe.
3. List all IPC mechanisms.
4. Use of SHM in detail.

5. Signal

1. Explain the signals in detail.
2. What is a SIGINT signal?

6. Socket

1. What is the use of socket programming?
2. Explain the use of TCP programming.
3. Explain the use of UDP programming.
4. Difference between the TCP and UDP socket
5. OSI and TCP module

7. Threads

1. Explain the use of mutex and semaphores.
2. Explain the difference between the process and thread.
3. Explain the binary semaphore in detail.
4. Explain the semaphores in detail.
5. What is the use of mutex?
6. What is meant by deadlock
7. Explain the concept of threads and write a program on threads using two functions.

8. Process and Memory Management

1. Some questions related to Memory & Process Scheduling Types

General Questions

1. Explain about router
2. Explain projects
3. What are the difficulties you faced while doing projects and how you overcomed it
4. Which topology connect to common network.
5. SI unit for power.
6. Different between Switch and hub
7. .If speed = 60 km/h, find the distance covered in 2 hours 30 minute.
8. The mean of 5 numbers is 20 If one number is excluded, mean of the remaining numbers becomes 18 then the excluded number is _____.
9. If a man can complete a work in 10 days, what fraction of work will he complete in 2 day
10. in 1000 lines of code with so many different errors and also segmentation fault is occured,then how you will debug the code segmentation fault
11. A man and his camel will be there and he has 3000 bananas and he want to travel from point A to point B, which is 1000 km far from point A , and he want to carry those 3000 bananas to point B ,but for every 1km Camel will eat one banana and the camel can carry only 1000 bananas at a time. Question : How efficiently you can save the bananas when you reach point B?