**SET-I**

Que. 1 - **Describe various features of the C programming language?**

Ans.

1. **Simple**

c is a easy language in the sense that it provides a dependent method (to interrupt the hassle into parts), the rich set of library capabilities, statistics kinds, and so forth.

1. **Machine Independent or Portable**  
   unlike assembly language, c applications can be performed on special machines with a few device unique changes. Therefore, c is a system unbiased language.
2. **Mid-level programming language**  
   although, c is intended to do low-stage programming. It's far used to expand gadget applications including kernel, motive force, and many others. It also supports the functions of a excessive-level language. This is why it is referred to as mid-level language.
3. **Structured programming language**  
   c is a Structured programming language within the sense that we can spoil the program into parts using features. So, it is simple to understand and regulate. Features also provide code re usability.
4. **Rich Library**  
   c provides a whole lot of built in capabilities that make the development fast.
5. **Memory Management**  
   it supports the feature of dynamic memory allocation. In c language, we will loose the allocated reminiscence at any time by using calling the loose() characteristic.
6. **Speed**  
   the compilation and execution time of interval is speedy considering the fact that there are lesser in-built features and for this reason the lesser overhead.
7. **Pointer**c provides the feature of pointers. We are able to directly engage with the memory with the aid of using the recommendations. We will use suggestions for memory, systems, capabilities, array, etc.
8. **Recursion**  
   in c, we are able to name the characteristic inside the characteristic. It offers code re usability for every function. Recursion permits us to apply the technique of backtracking.
9. **Extensible**

c program language period is extensible because it can effortlessly adopt new capabilities.

Que. 2 **-** **Explain various branching statements in C with examples?**

Ans.

****C if else Statement****

**The if-else statement in C is used to perform the operations based on some specific condition. The operations specified in if block are executed if and only if the given condition is true.**

**There are the following variants of if statement in C language.**

**If statement**

**If-else statement**

**If else-if ladder**

**Nested if**

1. ****If Statement****

**The if statement is used to check some given condition and perform some operations depending upon the correctness of that condition. It is mostly used in the scenario where we need to perform the different operations for the different conditions.**

1. ****If-else Statement****

**The if-else statement is used to perform two operations for a single condition. The if-else statement is an extension to the if statement using which, we can perform two different operations, i.e., one is for the correctness of that condition, and the other is for the incorrectness of the condition. Here, we must notice that if and else block cannot be executed simiulteneously. Using if-else statement is always preferable since it always invokes an otherwise case with every if condition.**

1. ****If else-if ladder Statement****
2. **The if-else-if ladder statement is an extension to the if-else statement. It is used in the scenario where there are multiple cases to be performed for different conditions. In if-else-if ladder statement, if a condition is true then the statements defined in the if block will be executed, otherwise if some other condition is true then the statements defined in the else-if block will be executed, at the last if none of the condition is true then the statements defined in the else block will be executed. There are multiple else-if blocks possible. It is similar to the switch case statement where the default is executed instead of else block if none of the cases is matched.**

****Program to calculate the grade of the student according to the specified marks****

1. #include <stdio.h>
2. int**main()**
3. **{**
4. int**marks;**
5. **printf(**"Enter your marks?"**);**
6. **scanf(**"%d"**,&marks);**
7. if**(marks > 85 && marks <= 100)**
8. **{**
9. **printf(**"Congrats ! you scored grade A ..."**);**
10. **}**
11. elseif**(marks > 60 && marks <= 85)**
12. **{**
13. **printf(**"You scored grade B + ..."**);**
14. **}**
15. elseif**(marks > 40 && marks <= 60)**
16. **{**
17. **printf(**"You scored grade B ..."**);**
18. **}**
19. elseif**(marks > 30 && marks <= 40)**
20. **{**
21. **printf(**"You scored grade C ..."**);**
22. **}**
23. else
24. **{**
25. **printf(**"Sorry you are fail ..."**);**
26. **}**
27. **}**

Que. 3 **-** ****Define a function. List and explain the categories of user-defined functions.?****

Ans.

**A user-defined function is one that is described by using the consumer while writing any program, as we do not have library capabilities which have predefined definitions. To fulfill the unique requirements of the consumer, the user has to increase his or her own features. Such functions have to be defined nicely by means of the consumer. There is no such kind of requirement to add any precise library to the program.**

****Types of User-defined Functions in C****

1. **Function with no arguments and no return value**
2. **Function with no arguments and a return value**
3. **Function with arguments and no return value**
4. **Function with arguments and with return value**
5. ****Function with No Arguments and No Return Value**  
   A user-defined function is one that is described by using the consumer while writing any program**
6. ****Function With Arguments and No Return Value**  
   Functions that have arguments but no return values. Such functions are used to display or perform some operations on given arguments.**
7. ****Function with No Arguments and With Return Value**Functions that have no arguments but have some return values. Such functions are used to perform specific operations and return their value.**

****Function With Arguments and With Return Value**Functions that have arguments and some return value. These functions are used to perform specific operations on the given arguments and return their values to the user  
  
#include <stdio.h>**

**int sum(int x, int y)**

**{**

**return x + y;**

**}**

**// Driver code**

**int main()**

**{**

**int x, y;**

**printf("Enter x and y\n");**

**scanf("%d %d", &x, &y);**

**// function call**

**printf("Sum of %d and %d is: %d",**

**x, y, sum(x, y));**

**return 0;**

**}**

**SET-II**

Que. 1 - ****Explain the Construction of Hard drive?****

Ans.

The Hard disk drive abbreviated as HDD is the main and biggest storage tool of the laptop. It involves electronic circuitry and shifting components to shop information by way of the use of the magnetic polarities. The records the hard disk drives save is permanent and is present despite the fact that the computer is grew to become off.

The American data storage organizations Seagate technology and western Digital, Hitachi and Toshiba are the leading manufacturers of tough disk drives.

After it was brought in 1956, the inner creation of HDDs hasn’t changed a lot besides that it's far synthetic in various form elements (dimensions).

It essentially consists of hard power platters (disk formed magnetic fabric) inner air sealed casing.

Hard disk drive - from the internal, one aspect of the casing is the electronics control board known as disk controller. There may be also a motor which spins the platters at 3600 or 7200 rpm underneath the board.

The arm present over the platter in the nook holds the study (or) write heads and has extraordinarily fast moving styles.

Connection architecture:

those hard drives are related to the motherboard the usage of the strength cable and both of the ATA, SATA or SCSI cables through the back give up ports. The precise cable to b used will depend on the sort of HDD and generally blanketed with the HDD .

Que. 2 **-** ****Explain the components of Graphics, Video Cards?****

Ans.

Graphics card won't be the crucial thing for a mean or ordinary user however it is the most important aspect for high cease game enthusiasts and people who run useful resource in depth portraits packages or software. Graphics cards are very advanced devices and are made from complex additives. So here i will give an explanation for you approximately the information and use of different components of a photos card as many users are not aware about it.

**Major Components of a Graphics Card :-**

****1. GPU (Graphics Processing Unit)****

**Graphics processing unit or commonly referred to as GPU is the coronary heart of the Graphics card. It's miles the principle issue of the Graphics card in which all of the portraits processing takes vicinity. Unlike CPU that has most effective 2 – 16 cores, a GPU processor is made of loads or thousands of small cores or units that runs in parallel to carry out complex Graphics operations. Nvidia called those cores or processors as cuda cores or shaders and amd / ati referred to as them as movement processors.**

1. ****Memory****

**Memory is the place in which all the complex textures and different photos information are saved. GPU fetches the textures from the memory, processes them, send it returned to ram after which it sends it to the RAMDAC after which to your LCD display or display. RAMDAC is random get right of entry to reminiscence digital to analog converter which converts the image to the analog sign and sends them in your monitor or liquid crystal display screen via display cable.**

**Graphics Card have one of a kind sorts of memory relying upon the GPU used in the images card. The most commonplace type of recollections utilized in snap shots cards are gddr3 and gddr5 ram, where g stands for snap shots and DDR stands for double records fee. Graphics card ram or reminiscence is a good deal faster than the reminiscence used to your desktop or laptop.**

1. ****Heat Sink and Fan****

**Heatsink and fan forms the cooling part of the photos card, which are used to lower down the temperature of GPU and RAM (in a few cards). Heatsink is a passive cooling device this is made from copper or aluminum and its most important reason is to take the heat faraway from the GPU and dissipates it within the environment. Fan is an energetic cooling device that blows air onto the heatsink to make heatsink calm down faster in order that it can draw away the heat quick from the additives. Some low stop pix playing cards are prepared with most effective heatsink however the all the mid and excessive range ones have both heatsink and fan combination for proper and green cooling.**

1. ****DVI / HDMI / VGA Ports****

**They paperwork the outside interface of the pictures card. They are used to connect your reveal or liquid crystal display screen on your images card by applicable cable. Low end pix card have only VGA and DVI (Digital video interface) ports at the same time as the excessive-quit ones have each DVI and HDMI (excessive-definition multimedia interface). Each DVI and HDMI are digital interface however in HDMI the audio sign or sound can be carried by using it.**

**A majority of these components are embedded on the PCU (Printed Circuit Board), which you may say bureaucracy the motherboard of a pics card. Except these kinds of essential additives, other smaller components like capacitors, diodes, resistors and so on. Also are present on a graphics card.**

Que. 3 **-** ****Explain SCSI consideration?****

Ans.

**The basic interface for connecting peripheral devices to a computer is a small laptop device interface. Based at the specification, it could normally reply as much as 16 outside gadgets using a single path, at the side of a host adapter. Small laptop machine interface is used to reinforce overall performance, deliver rapid information transfer transport and offer wider growth for machines like CD-ROM drivers, scanners, DVD>drives and CD writers. Small computer device interface is most generally used for raid, servers, enormously efficient laptop computers, and storage region networks. The small PC device interface has manage, which is chargeable for transmitting facts across the small PC gadget interface bus and the computers. It may be fixed on a motherboard**

**, or one purchaser adapter is hooked up through an extension on the PC's motherboard. The controller also contains a easy SCSI enter/output gadget, that is a small chip that provides get entry to and manipulate system with the vital software. The SCSI id is his quantity. The usage of serial storage structure initiators, new serial SCSI ids inclusive of serial connected SCSI use an automatic technique which assigns a 7-bit quantity.**

****Serial-attached SCSI:** SAS goods are compliant with appliances that use preceding SCSI era. The serial garage architecture widespread can be used if SCSI overall performance is not appropriate, as can SCSI, which preserves the SCSI command set with the aid of embedding scsi-3 over TCP/IP. In organization environments, SAS has come to be a common opportunity to parallel SCSI. Serial and parallel small laptop device interface are each based at the set of SCSI commands.**

****SAS provides the subsequent specific blessings over parallel SCSI:** thru buses and interfaces, peripheral devices are related to the CPU, and the maximum not unusual interface for connecting those gadgets is SCSI. Compared to the parallel statistics transfer interfaces utilized in in advance days, SCSI turned into progressive technology in phrases of statistics switch and compatibility. SCSI additionally gives backward compatibility while systems are compliant with the preceding SCSI edition. A cutting-edge variant of SCSI can also be related to these machines, although the statistics transfer price would be better. A SCSI parallel bus became used for the original SCSI.**