S.G.B.B. GOVERNMERNT POLYTECHNIC COLLEGE SIROHI

FIRST CLASS TEST

Subject: C Language: CS201 dated 21.11.2017 / EL210 dated 22.11.2017

MM 15 Time 1Hour

Q1. What are Keywords in C Language.

Q2. Explain character set.

Q3. Write the structure of a C program.

Ans 1.

C programs are constructed from a set of reserved words which provide control and from libraries which perform special functions. The basic instructions are built up using a reserved set of words, such as **main, for, if, while, default, double, extern, for, and int**, etc., C demands that they are used only for giving commands or making statements. You cannot use **default**, for example, as the name of a variable. An attempt to do so will result in a compilation error.

Keywords have standard, predefined meanings in C. These keywords can be used only for their intended purpose; they cannot be used as programmer-defined identifiers. Keywords are an essential part of a language definition. They implement specific features of the language. Every C word is classified as either a keyword or an identifier. A keyword is a sequence of characters that the C compiler readily accepts and recognizes while being used in a program. Note that the keywords are all lowercase. Since uppercase and lowercase characters are not equivalent, it is possible to utilize an uppercase keyword as an identifier.

- The keywords are also called '**Reserved words**'.
- Keywords are the words whose meaning has already been explained to the C compiler and their meanings cannot be changed.
- Keywords serve as basic building blocks for program statements.
- Keywords can be used only for their intended purpose.
- Keywords cannot be used as user-defined variables.
- All keywords must be written in lowercase.
- 32 keywords available in C.

Data types	Qualifiers	User-defined	Storage Classes	Loop	Others
int	signed	typedef	auto	for	const
char	unsigned	enum	extern	while	volatile
float	short		register	do	sizeof
double	long		static		

Decision	Jump	Derived	function
if	goto	struct	void
else	continue	union	return
switch	break		
case			
default			

Ans 2.

Character set of C

character:- It denotes any alphabet, digit or special symbol used to represent information.

Use:- These characters can be combined to form variables. C uses constants, variables, operators, keywords and expressions as building blocks to form a basic C program.

Character set:- The character set is the fundamental raw material of any language and they are used to represent information. Like natural languages, computer language will also have well defined character set, which is useful to build the programs.

The characters in C are grouped into the following **two** categories:

1. **Source character set**
   a. Alphabets
   b. Digits
   c. Special Characters
   d. White Spaces

2. **Execution character set**
   a. Escape Sequence

Source character set

ALPHABETS

Uppercase letters A-Z
Lowercase letters a-z

DIGITS

0, 1, 2, 3, 4, 5, 6, 7, 8, 9

SPECIAL CHARACTERS

~ tilde % percent sign | vertical bar @ at symbol + plus sign < less than

_ underscore - minus sign > greater than ^ caret # number sign = equal to

& ampersand $ dollar sign / slash (left parenthesis * asterisk \ back slash

) right parenthesis ′ apostrophe : colon [left bracket " quotation mark ; semicolon

] right bracket ! exclamation mark , comma { left flower brace ? Question mark . dot operator

} right flower brace

WHITESPACE CHARACTERS

\b blank space \t horizontal tab \v vertical tab \r carriage return \f form feed \n new line

\\ Back slash \’ Single quote \" Double quote \? Question mark \0 Null \a Alarm (bell)

Execution Character Set

Certain ASCII characters are unprintable, which means they are not displayed on the screen or printer. Those characters perform other functions aside from displaying text. Examples are backspacing, moving to a newline, or ringing a bell.

They are used in output statements. Escape sequence usually consists of a backslash and a letter or a combination of digits. An escape sequence is considered as a single character but a valid character constant.

These are employed at the time of execution of the program. Execution characters set are always represented by a backslash (\) followed by a character. Note that each one of character constants represents one character, although they consist of two characters. These characters combinations are called as **escape sequence**.

Backslash character constants

Character	ASCII value	Escape Sequence	Result
Null	000	\0	Null
Alarm (bell)	007	\a	Beep Sound
Back space	008	\b	Moves previous position
Horizontal tab	009	\t	Moves next horizontal tab
New line	010	\n	Moves next Line
Vertical tab	011	\v	Moves next vertical tab
Form feed	012	\f	Moves initial position of next page
Carriage return	013	\r	Moves beginning of the line
Double quote	034	\"	Present Double quotes
Single quote	039	\'	Present Apostrophe
Question mark	063	\?	Present Question Mark
Back slash	092	\\	Present back slash
Octal number	\000		
Hexadecimal number	\x		

Ans 3:

- **Documentation section :** The documentation section consists of a set of comment lines giving the name of the program, the author and other details, which the programmer would like to use later.
- **Link section :** The link section provides instructions to the compiler to link functions from the system library.
- **Definition section :** The definition section defines all symbolic constants.

- **Global declaration section :** There are some variables that are used in more than one function. Such variables are called global variables and are declared in the global declaration section that is outside of all the functions. This section also declares all the user-defined functions.
- **main () function section :** Every C program must have one main function section. This section contains two parts; declaration part and executable part
- **Declaration part :** The declaration part declares all the variables used in the executable part.
- **Executable part :** There is at least one statement in the executable part. These two parts must appear between the opening and closing braces. The program execution begins at the opening brace and ends at the closing brace. The closing brace of the main function is the logical end of the program. All statements in the declaration and executable part end with a semicolon.
- **Subprogram section :** The subprogram section contains all the user-defined functions that are called in the main () function. User-defined functions are generally placed immediately after the main () function, although they may appear in any order
- Note:All section, except the main () function section may be absent when they are not required.
-

Sample C Program:

```
#include<stdio.h> <————————-Preprocessing Directive

void main()

{ <————————Start of a Program

/*.............Printing Starts.............*/

Printf(“Learn at every moment”);

/*.............Printing starts.........*/

} <————————-End of a Program
```

Model Answer Sheet

SGBB GOVT POLYTECHNIC COLLEGE, SIROHI

MAX TIME- 1 HR CLASS TEST-I (SESSION 2017-18) MAX MARKS-15

SUB- COMPUTER SYSTEM ARCHITECTURE (CS202) DATE-22/11/2017

NOTE- ATTEMPT ANY THREE QUESTIONS.

1) Draw the Von Neumann Architecture of computer and explain its components. (5)
2) Explain shift micro operations. (5)
3) Explain arithmetic micro operations. (5)
4) Write short note on Generations of computers. (5)

Answer1:-

His computer architecture design consists of a Control Unit, Arithmetic and Logic Unit (ALU), Memory Unit, Registers and Inputs/Outputs.

Von Neumann architecture is based on the stored-program computer concept, where instruction data and program data are stored in the same memory. This design is still used in most computers produced today.

Central Processing Unit (CPU):-

The Central Processing Unit (CPU) is the electronic circuit responsible for executing the instructions of a computer program.

It is sometimes referred to as the microprocessor or processor.

The CPU contains the ALU, CU and a variety of registers.

Registers are high speed storage areas in the CPU. All data must be stored in a register before it can be processed.

MAR-Memory Address Register

Holds the memory location of data that needs to be accessed

MDR-Memory Data Register

Holds data that is being transferred to or from memory

AC-Accumulator

Where intermediate arithmetic and logic results are stored

PC-Program Counter Contains the address of the next instruction to be executed

CIR-Current Instruction Register, Contains the current instruction during processing

Arithmetic and Logic Unit (ALU)-The ALU allows arithmetic (add, subtract etc) and logic (AND, OR, NOT etc) operations to be carried out.

Control Unit (CU)-The control unit controls the operation of the computer's ALU, memory and input/output devices, telling them how to respond to the program instructions it has just read and interpreted from the memory unit. The control unit also provides the timing and control signals required by other computer components.

Answer2:-
Shiftmicrooperationsareinvolvedinshiftingofbitsofaregister.Theseoperationsarecategorizedintothreegroups.

Logical shift micro-operation

Circular Shift micro-operation

Arithmetic shift micro-operation

Logical shift micro-operations: These operations are associated with shift of data bits towards left or right and allowing a serial bit stream to occupy vacated bit positions. Intheseoperationsbitstreamsof0areusedtofillinvacatedbits.

Circular shift micro-operations. In this shift operation the MSB bit of the register are virtually connected to the LSB bit of the same register. So in case of shift operation (left or right) the data does not get lost. Instead the data moves in a circular fashion.

Arithmetic shift micro operations:-

In this operation we shift signed binary numbers left or right. For these operations proper care must be taken. Lets discuss this shift operation in three sections.

Arithmetic shift right:

Arithmetic shift left:

Discussion on Arithmetic shift micro operations -

Arithmetic shift right:

Shift right for signed numbers is same as dividing the bin number by 2.

Arithmetic shift left:

Shift left for signed numbers is same as multiplying the bin number by 2.

Answer3:-

Arithmetic Micro operations:- Unlike register transfer micro operations, arithmetic micro operations change the information content.

• The basic arithmetic microoperations are:–addition,subtraction,increment,decr-ement, shift.
• The RTL statement:R3 ← R1 + R2indicates an add microoperation. We can similarly specify the other arithmetic microoperations.
• Multiplication and division are not considered microoperations.
– Multiplication is implemented by a sequence of adds and shifts.
– Division is implemented by a sequence of substracts and shifts.
Arithmetic Microoperations
R1 ← R1 - 1 Decrement content of R1 by 1
R1 ← R1 + 1 Increment content of R1 by 1
R3 ← R1+R2 + 1 R1 plus 2's comp. of R2
R2 ← R2 + 1 2's complment contens of R2 (negate)
R2 ← R2 Complement contents of R2 (1's comp.)
R3 ← R1 – R2 Contents of R1 minus R2 transferred to R3
R3 ← R1 + R2 Contents of R1 plus R2 transferred to R3

Answer4:-

First Generation: Vacuum Tubes (1940-1956):-The first computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. These computers were very expensive to operate and in addition to using a great deal of electricity, the first computers generated a lot of heat, which was often the cause of malfunctions.

First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time. It would take operators days or even weeks to set-up a new problem. Input was based on punched cards and paper tape, and output was displayed on printouts.

Second Generation: Transistors (1956-1963):-The world would see transistors replace vacuum tubes in the second generation of computers. The transistor was invented at Bell Labs in 1947 but did not see widespread use in computers until the late 1950s.

The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage, it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output.

Third Generation: Integrated Circuits (1964-1971):-The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.

Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation: Microprocessors (1971-Present)

The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The Intel 4004 chip, developed in 1971, located all the components of the computer—from the central processing unit and memory to input/output controls—on a single chip.

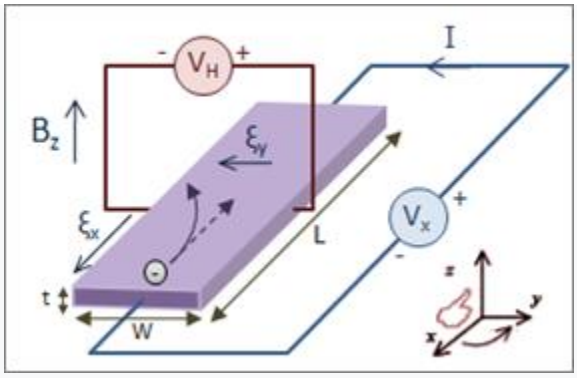
Fifth Generation: Artificial Intelligence (Present and Beyond):-Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

Sub: EL 204 / CS 204

Q-1 Explain Hall Effect. Find out hall voltage and coefficient.

The **Hall effect** is the production of a voltage difference (the **Hall voltage**) across an electrical conductor, transverse to an electric current in the conductor and to an applied magnetic field perpendicular to the current. The Hall coefficient is defined as the ratio of the induced electric field to the product of the current density and the applied magnetic field. It is a characteristic of the material from which the conductor is made, since its value depends on the type, number, and properties of the charge carriers that constitute the current

The Hall effect is due to the nature of the current in a conductor. Current consists of the movement of many small charge carriers, typically electrons, holes, ions (see Electro migration) or all three. When a magnetic field is present, these charges experience a force, called the Lorentz force.[5] When such a magnetic field is absent, the charges follow approximately straight, 'line of sight' paths between collisions with impurities, phonons, etc. However, when a magnetic field with a perpendicular component is applied, their paths between collisions are curved, thus moving charges accumulate on one face of the material. This leaves equal and opposite charges exposed on the other face, where there is a scarcity of mobile charges. The result is an asymmetric distribution of charge density across the Hall element, arising from a force that is perpendicular to both the 'line of sight' path and the applied magnetic field. The separation of charge establishes an electric field that opposes the migration of further charge, so a steady electric potential is established for as long as the charge is flowing.



Hall effect measurement setup for electrons. Initially, the electrons follow the curved arrow, due to the magnetic force. At some distance from the current-introducing contacts, electrons pile up on the left side and deplete from the right side, which creates an electric field ξ_y in the direction of the assigned V_H. V_H is negative for some semi-conductors where "holes" appear to flow. In steady-state, ξ_y will be strong enough to exactly cancel out the magnetic force, thus the electrons follow the straight arrow (dashed).

For a simple metal where there is only one type of charge carrier (electrons), the Hall voltage V_{H} can be derived by using the Lorentz force and seeing that, in the steady-state condition, charges are not moving in the y-axis direction. Thus, the magnetic force on each electron in the y-axis direction is cancelled by a y-axis electrical force due to the buildup of charges. The v_x term is the drift velocity of the current which is assumed at this point to be holes by convention. The $v_x B_z$ term is negative in the y-axis direction by the right hand rule.

$$\mathbf{F} = q\left[\mathbf{E} + (\mathbf{v} \times \mathbf{B})\right]$$

In steady state, $\mathbf{F} = \mathbf{0}$, so $0 = E_y - v_x B_z$, where E_y is assigned in direction of y-axis, (and not with the arrow of the induced electric field ξ_y as in the image (pointing in the $-y$ direction), which tells you where the field caused by the electrons is pointing).

In wires, electrons instead of holes are flowing, so $v_x \to -v_x$ and $q \to -q$. Also $E_y = -\frac{V_{\mathrm{H}}}{w}$. Substituting these changes gives

$$V_{\mathrm{H}} = v_x B_z w$$

The conventional "hole" current is in the negative direction of the electron current and the negative of the electrical charge which gives $I_x = ntw(-v_x)(-e)$ where n is charge carrier density, tw is the cross-sectional area, and $-e$ is the charge of each electron. Solving for w and plugging into the above gives the Hall voltage:

$$V_{\mathrm{H}} = \frac{I_x B_z}{nte}$$

If the charge build up had been positive (as it appears in some semiconductors), then the V_{H} assigned in the image would have been negative (positive charge would have built up on the left side).

The Hall coefficient is defined as

$$R_{\mathrm{H}} = \frac{E_y}{j_x B_z}$$

where j is the current density of the carrier electrons, and E_y is the induced electric field. In SI units, this becomes

$$R_{\mathrm{H}} = \frac{E_y}{j_x B} = \frac{V_{\mathrm{H}} t}{IB} = -\frac{1}{ne}.$$

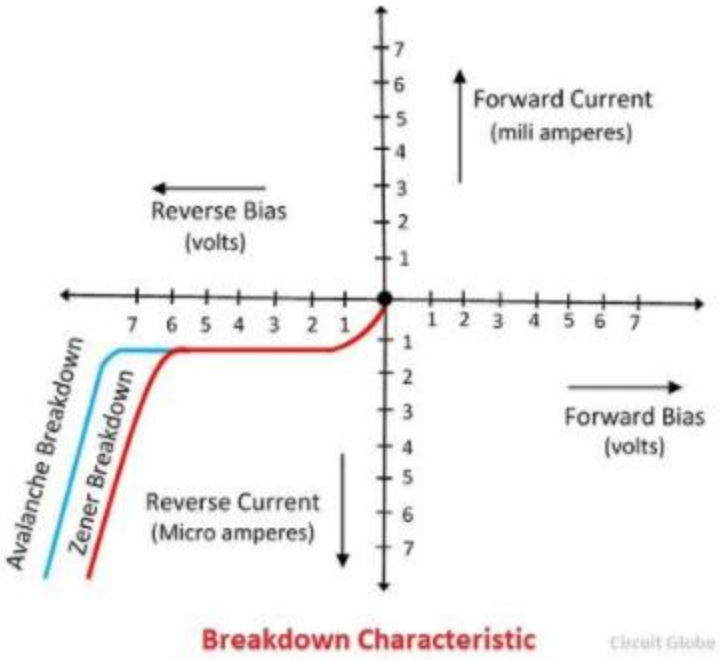
(The units of R_{H} are usually expressed as m^3/C, or Ω·cm/G, or other variants.) As a result, the Hall effect is very useful as a means to measure either the carr density or the magnetic field.

Q-2 Write difference between zener diode and avalanche diode.

Basis For Comparison	Avalanche Breakdown	Zener Breakdown
Definition	The avalanche breakdown is a phenomena of increasing the free electrons or electric current in semiconductor and insulating material by applying the higher voltage.	The process in which the electrons are moving across the barrier from the valence band of the p-type material to the conduction band of the lightly filled n-material is known as the Zener breakdown.
Depletion Region	Thick	Thin
Junction	Destroy	Not Destroy
Electric Field	Weak	Strong
Produces	Pairs of electron and hole.	Electrons.
Doping	Low	Heavy
Reverse potential	High	Low
Temperature Coefficient	Positive	Negative
Ionization	Because of collision	Because of Electric Field
Breakdown Voltage	Directly proportional to temperature.	Inversely proportional to temperature.
After Breakdown	Voltage vary.	Voltage remains constant

Breakdown Characteristic Graph

The graphical representation of the Avalanche and Zener breakdown is shown in the figure below.



Q-3 Explain

(a) Varactor diode (b) Photo diode (c) LED (d) Photo voltaic cell

(a) Varactor diode

its name due to its variable reactor or variable capacitor of diodes. A varactor diode is a special kind of diode and widely used in electronics industry along with different electronics applications.

The varactor diode is also a solid semiconductor microwave and used in applications where the variable capacitance is obtained by controlling voltage.

Symbol

Since Variable capacitor is the primary function of a varactor diode, the circuit symbol is represented like this.

Varactor diode circuit symbol

Varactor diodes are mostly operated under reverse bias conditions and therefore there is no conduction. They are voltage controlled capacitors and sometimes known as varicap diodes, although the word varactor is widely used.

Variable Capacitance Characteristics

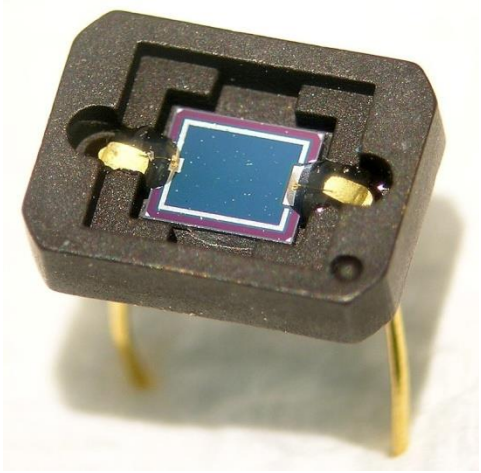
Variable capacitance effect is shown by normal diodes, but varactor diodes are preferred for providing the required capacitance changes. The diodes are uniquely optimized and manufactured such that they enable high range changes in capacitance. Varactor diodes are categorized based on the properties of diode junction.

Varactor diode Applications

Varactor diodes are used in RF design arena and provide a method of varying the capacitance within a circuit by the application of control voltage. It provides them special capability due to which varactor diodes are used in RF industry.

(b) Photodiode

A Photodiode is an example of an optoelectronic junction device, which implies that it is used as an electrical to optical or an optical to electrical transducer. It works on the effect of light falling onto a diode which leads to the generation of current through it. It is implemented over a special p-n junction diode by fabricating a transparent window on top of it which allows light to be incident on the diode.



Photodiode

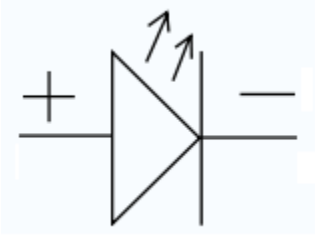
A photodiode is subjected to photons in the form of light which affects the generation of electron-hole pairs. If the energy of the falling photons (hv) is greater than the energy gap (E_g) of the semiconductor material, electron-hole pairs are created near the depletion region of the diode. The electron-hole pairs created are separated from each other before recombining due to the electric field of the junction. The direction of electric field in the diode forces the electrons to move towards the n – side and consequently the holes move towards the p-side. As a result of the increase in the number of electrons on the n – side and holes on the p-side, a rise in the electromotive force is observed. Now when an external load is connected to the system, a current flow is observed through it.

The more the electromotive force created, the greater is the current flow. The magnitude of the electromotive force created depends directly upon the intensity of the incident light. This effect of proportional change in photocurrent with change in light intensity can be easily observed by applying a reverse bias.

Since photodiodes generate current flow directly depending upon the light intensity received, they can be used as photo detectors to detect optical signals. Built-in lenses and optical filters may be used to enhance the power and productivity of a photodiode.

(c) LED

A light emitting diode (LED) is an example of an Optoelectronic junction device, which implies that it is used as an electrical to optical or an optical to electrical transducer. It works on the effect of suitable voltage being applied to the diode which leads to the generation of light in the form of photons. It is implemented over a heavily doped p-n junction diode by fabricating a transparent window on top of it which allows the generated light to be emitted out of the diode.



When a forward bias voltage is applied to a diode both electrons and holes move in opposite directions where they are minority carriers i.e. electrons move from n-side to p-side and holes move from p-side to n-side. Due to this movement, the equilibrium is disturbed and consequently the concentration of minority carriers at the boundary of the junction increases. Because of this excess presence of minority carriers at the boundary junction, they combine with majority carriers and this combination releases energy in the form of photons. The photons that are emitted have energy equal to or greater than the band gap energy for the diode and hence they are able to escape from it in the form of light.

The intensity of the light emitted is directly proportional to the intensity of the bias voltage being applied to the diode. However after reaching a peak value, on further increase in the bias voltage the emitted light intensity decreases. Therefore it is necessary to apply the bias in such a manner

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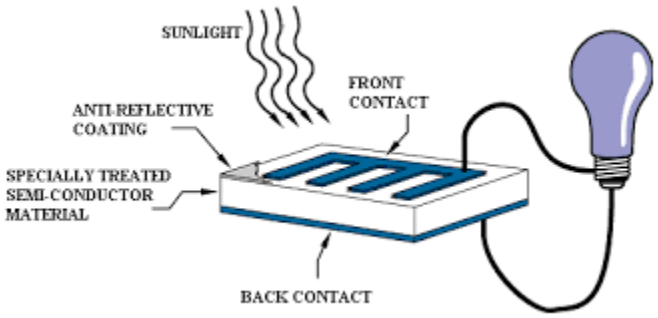
Photovoltaic Cell:

- Photovoltaic cells consist of two or more layers of semiconductors with one layer containing positive charge and the other negative charge lined adjacent to each other.
- Sunlight, consisting of small packets of energy termed as photons, strikes the cell, where it is either reflected, transmitted or absorbed.
- When the photons are absorbed by the negative layer of the photovoltaic cell, the energy of the photon gets transferred to an electron in an atom of the cell.
- With the increase in energy, the electron escapes the outer shell of the atom. The freed electron naturally migrates to the positive layer creating a potential difference between the positive and the negative layer. When the two layers are connected to an external circuit, the electron flows through the circuit creating a current.



Advantages of Photovoltaic Cells:

- **Environmental Sustainability:** Photovoltaic cells generate clean and green energy as no harmful gases such as Co_x, NO_x etc are emitted. Also, they produce no noise pollution which makes them ideal for application in residential areas.
- **Economically Viable:** Operation and maintenance cost of cells are very low. The cost of solar panel incurred is only the initial cost i.e., purchase and installation.
- **Accessible:** Solar panels are easy to set up and can be made accessible in remote locations or sparsely inhabited areas at a lesser cost as compared to conventional transmission lines. They are easy to install without any interference to the residential lifestyle.
- **Renewable:** Energy is free and abundant in nature.
- **Cost:** Solar panels have no mechanically moving parts except in some highly advanced sunlight tracking mechanical bases. Consequently, the solar panel price for maintenance and repair is negligible.

Disadvantages of Photovoltaic Cells:

- The efficiency of solar panels is low compared to other renewable sources of energy.
- Energy from the sun is intermittent and unpredictable and can only be harnessed in the presence of sunlight. Also, the power generated gets reduced during cloudy weather.
- Long range transmission of solar energy is inefficient and difficult to carry. The current produced is DC in nature and the conversion of DC current to AC current involves the use of additional equipments such as inverters.
- Photovoltaic panels are fragile and can be damaged relatively easily. Additional insurance costs are required to ensure a safeguard to the investments.

Q-4 What is filter? Describe:

(a) inductor filter

(b) capacitance filter

(c) pie filter

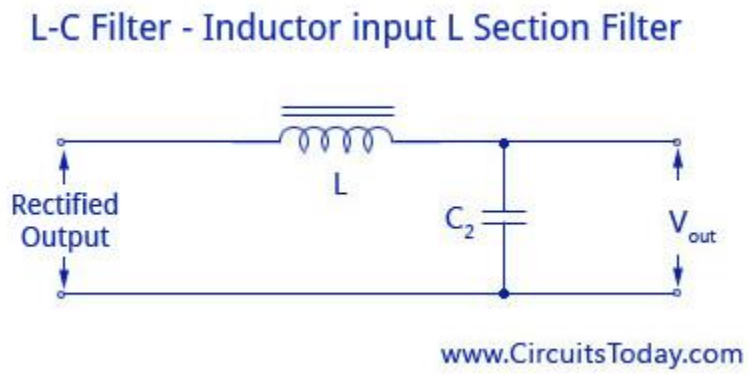
The filter is a device that allows passing the dc component of the load and blocks the ac component of the rectifier output. Thus the output of the filter circuit will be a steady dc voltage.

The filter circuit can be constructed by the combination of components like capacitors, resistors, and inductors. Inductor is used for its property that it allows only dc components to pass and blocks ac signals. Capacitor is used so as to block the dc and allows ac to pass.

(a) L- Filter

An inductor filter increases the ripple factor with the increase in load current Rload. A capacitor filter has an inversely proportional ripple factor with respect to load resistance. Economically, both inductor filter and capacitor filter are not suitable for high end purpose

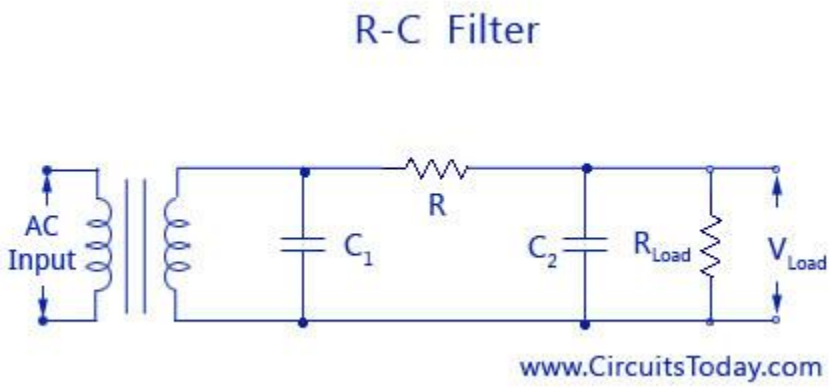
L-section filter consists of an inductor ‘ L’ connected in series with a half or full wave rectifier and a capacitor ’C’ across the load. This arrangement is also called a choke input filter or L-section filter because it’s shape resembles and inverted L-shape. To increase the smoothing action using the filter circuit, just one L-C circuit will not be enough. Several L-section filters will be arranged to obtain a smooth filtered output. The circuit diagram and smoothened waveform of a Full wave rectifier output is shown below.



L-C Filter Inductor input L-Section Filter

(b) Capacitance Filter

The main reason for all these drawbacks is the use of inductor in the filter circuit. If we use a resistance in series, instead of the inductor as the filter, these drawbacks can be overcome. Thus the circuit is named as R-C filter. In this circuit, the ripples have to be made to drop across the resistance R instead of the load resistance RL. For this, the value of RL is kept much larger than the value of reactance of capacitor C2 (XC2). This means that each section reduces the ripple by a factor of at least 10.



(c) Π – Filter

The name pi – Filter implies to the resemblance of the circuit to a Π shape with two shunt capacitances (C1 and C2) and an inductance filter 'L'. As the rectifier output is provided directly into the capacitor it also called a capacitor input filter.

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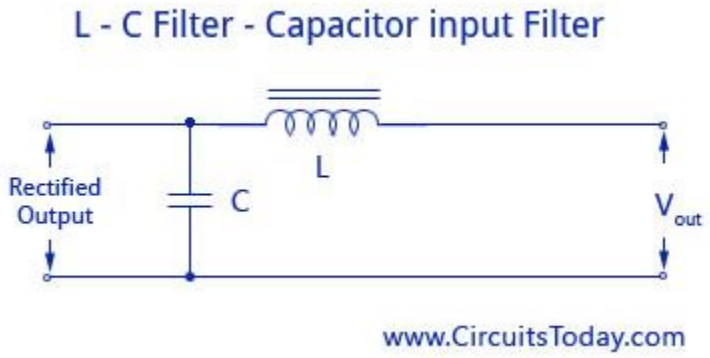


L-C Filter-Capaitor input Filter

I CLASS TEST 2017-18 CS 205 Digital Electronics

Time: 1 Hr Max. Marks: 15

First Question is compulsory & attempts any two from rest.

Q.1. State De-Morgan theorem. Prove it using truth table. 5

Q.2. Write advantages of digital techniques. 5

Q.3. What is logic gates? Design basic gates using universal gates 5

Q.4. Write laws of Boolean algebra. 5

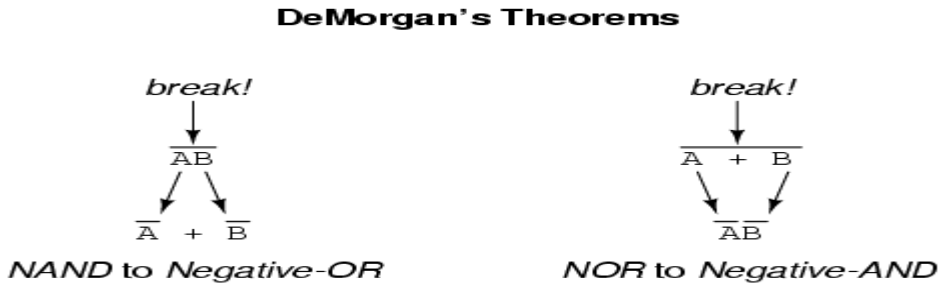
Q.5. Design Truth Table of 3 I/P Ex-or Gate 5

Answers:-

Q.1. State De-Morgan theorem. Prove it using truth table.

Ans. A mathematician named DeMorgan developed a pair of important rules regarding group complementation in Boolean algebra.

DE Morgan's theorem may be thought of in terms of *breaking* a long bar symbol. When a long bar is broken, the operation directly underneath the break changes from addition to multiplication, or vice versa, and the broken bar pieces remain over the individual variables. To illustrate:



Theorem 1

$\overline{A.B} = \overline{A} + \overline{B}$

NAND = Bubbled OR

- The left hand side (LHS) of this theorem represents a NAND gate with inputs A and B, whereas the right hand side (RHS) of the theorem represents an OR gate with inverted inputs.
- This OR gate is called as **Bubbled OR**.

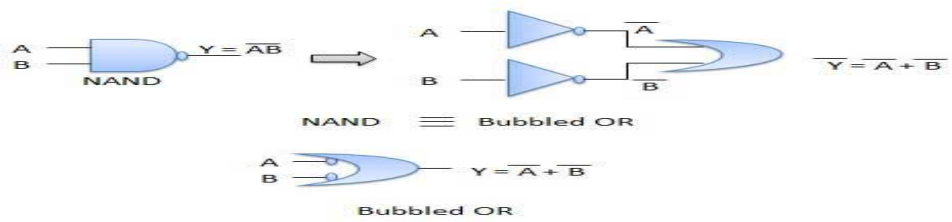


Table showing verification of the De Morgan's first theorem −

A	B	$\overline{AB}$	$\overline{A}$	$\overline{B}$	$\overline{A}+\overline{B}$
0	0	1	1	1	1
0	1	1	1	0	1
1	0	1	0	1	1
1	1	0	0	0	0

Theorem 2

$\overline{A+B}=\overline{A}.\overline{B}$

NOR = Bubbled AND

- The LHS of this theorem represents a NOR gate with inputs A and B, whereas the RHS represents an AND gate with inverted inputs.
- This AND gate is called as **Bubbled AND**.

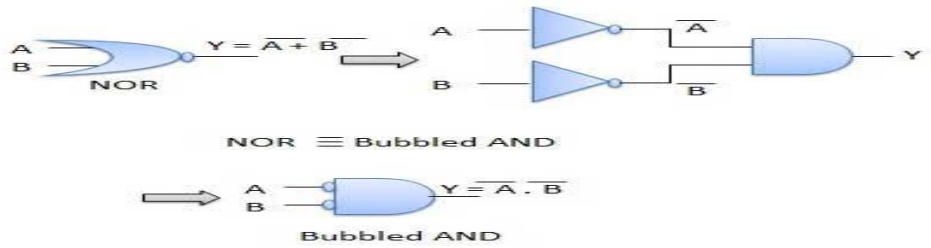


Table showing verification of the De Morgan's second theorem −

A	B	$\overline{A+B}$	$\overline{A}$	$\overline{B}$	$\overline{A}.\overline{B}$
0	0	1	1	1	1
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	0

Q.2. Write advantages of digital techniques**.**

Ans. Advantages

1. Easier to design. Exact values of voltage or current are not important, only the range (HIGH or LOW) in which they fall.
2. Information storage is easy.
3. Accuracy and precision are greater.
4. Operation can be programmed. Analog systems can also be programmed, but the variety and complexity of the available operations is severely limited.
5. Digital circuits are less affected by noise. As long as the noise is not large enough to prevent us from distinguishing a HIGH from a LOW.
6. More digital circuitry can be fabricated on IC chips.
7. Less expensive
8. More reliable
9. Easy to manipulate
10. Flexibility and Compatibility
11. Information storage can be easier in digital computer systems than in analog ones. New features
12. Can often be added to a digital system more easily too.

Q.3. What is logic gates? Design basic gates using universal gates

Ans.

A logic gate is an elementary building block of a digital circuit. Most logic gates have two inputs and one output. At any given moment, every terminal is in one of the two binary conditions *low* (0) or *high* (1), represented by different voltage levels. The logic state of a terminal can, and generally does, change often, as the circuit processes data. In most logic gates, the low state is approximately zero volts (0 V), while the high state is approximately five volts positive (+5 V).

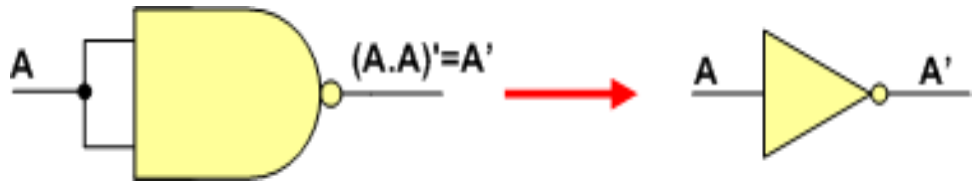
There are mainly three types of logic gate named AND, OR and NOT gate. And every gate does its own different logic function. So with the help of these basic logic gates, we can get any logical functions or any Boolean or else any logical expression.

A universal gate is a gate which can implement any Boolean function without need to use any other gate type.

The NAND and NOR gates are universal gates:-

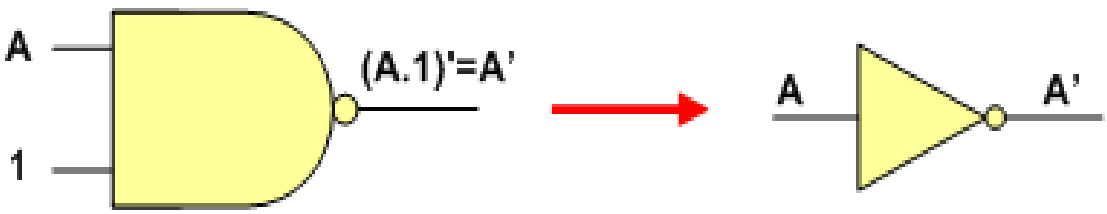
1. Implementing an Inverter Using only NAND Gate:-

All NAND input pins connect to the input signal A gives an output A'.



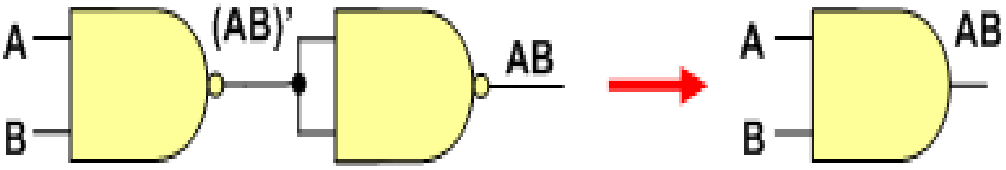
2. Implementing AND Using only NAND Gates:-

An AND gate can be replaced by NAND gates.The AND is replaced by a NAND gate with its output complemented by a NAND gate inverter.



3. Implementing OR Using only NAND Gates:-

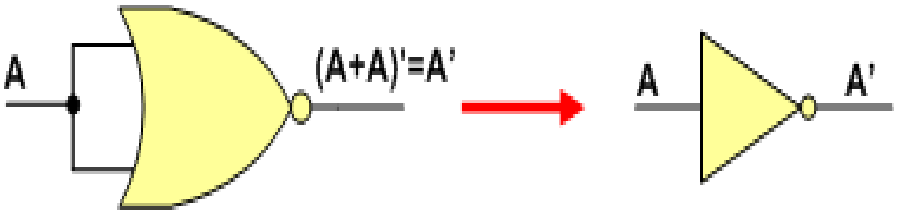
An OR gate can be replaced by NAND gates.The OR gate is replaced by a NAND gate with all its inputs complemented by NAND gate inverters.



Thus, the NAND gate is a universal gate since it can implement the AND, OR and NOT functions**.**

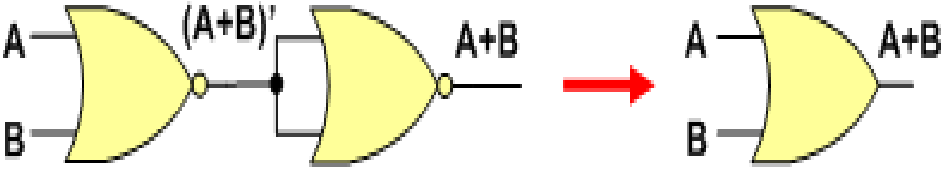
1. Implementing an Inverter Using only NOR Gate :-

All NOR input pins connect to the input signal A gives an output A'.



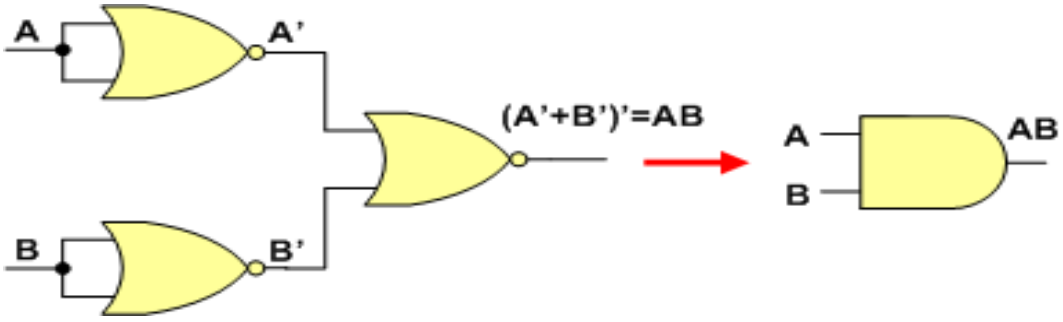
2. Implementing OR Using only NOR Gates:-

An OR gate can be replaced by NOR gates. The OR is replaced by a NOR gate with its output complemented by a NOR gate inverter.



3. Implementing AND Using only NOR Gates

An AND gate can be replaced by NOR gates. The AND gate is replaced by a NOR gate with all its inputs complemented by NOR gate inverters.



Thus, the NOR gate is a universal gate since it can implement the AND, OR and NOT functions.

Q.4. Write laws of Boolean algebra.

Ans.

Boolean Algebra is a form of mathematical algebra that is used in digital logic in digital electronics. Albebra consists of symbolic representation of a statement .

The main aim of any logic design is to simplify the logic as much as possible so that the final implementation will become easy. In order to simplify the logic, the Boolean equations and expressions representing that logic must be simplified.

So, to simplify the Boolean equations and expression, there are some laws and theorems proposed. Using these laws and theorems, it becomes very easy to simplify or reduce the logical complexities of any Boolean expression or function.

1. Associative Law

Associate Law of Addition

Associative law of addition states that OR ing more than two variables i.e. mathematical addition operation performed on variables will return the same value irrespective of the grouping of variables in an equation.

$$A+(B+C) = (A+B)+C$$

Associate Law of Multiplication

Associative law of multiplication states that ANDing more than two variables i.e. mathematical multiplication operation performed on variables will return the same value irrespective of the grouping of variables in an equation.

$$A * (B * C) = (A * B) * C$$

2. Distributive law

ANDing two variables and ORing the result with another variable is equal to AND of ORing of the variable with the two individual variables**.**

$$A + BC = (A + B)(A + C)$$

ORing two variables and ANDing the result with another variable is equal to OR of ANDing of the variable with the two individual variables.

$$A (B+C) = (A B) + (A C)$$

3. Commutative law

Commutative law states that the inter-changing of the order of operands in a Boolean equation does not change its result.

- Using OR operator → A + B = B + A
- Using AND operator → A * B = B * A

4. Absorption Law

Absorption law involves in linking of a pair of binary operations.

i. $A+AB = A$

ii. $A(A+B) = A$

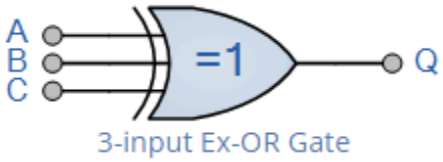
iii. $A+\bar{A}B = A+B$

iv. $A.(\bar{A}+B) = AB$

Q.5. Design Truth Table of 3 I/P Ex-or Gate.

Ans. The **Exclusive-OR Gate** function, is achieved by combining standard logic gates together to form more complex gate functions that are used extensively in building arithmetic logic circuits, computational logic comparators and error detection circuits.

The two-input "Exclusive-OR" gate is basically a modulo two adder, since it gives the sum of two binary numbers and as a result are more complex in design than other basic types of logic gate.

<table>
<tr><th>Symbol</th><th colspan="4">Truth Table</th></tr>
<tr><td rowspan="9"> 

3-input Ex-OR Gate</td><td>C</td><td>B</td><td>A</td><td>Q</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Boolean Expression Q = A ⊕ B ⊕ C</td><td colspan="4">"Any ODD Number of Inputs" gives Q</td></tr>
</table>

Exclusive-OR Gates are used mainly to build circuits that perform arithmetic operations and calculations especially Adders and Half-Adders as they can provide a "carry-bit" function or as a controlled inverter, where one input passes the binary data and the other input is supplied with a control signal.

SGBB GOVT POLYTECHNIC COLLEGE, SIROHI

MAX TIME- 1 HR **CLASS TEST-I (SESSION 2017-18)** **MAX MARKS-15**

SUB- Microprocessor and Interfacing (CS208) **DATE-**

Name of Faculty-RAHUL SINGH RAJPUROHIT (LECT-EL)

NOTE- ANSWER ANY THREE QUESTIONS. EACH QUESTION CONSIST EQUAL MARKS.

1) Write short note on the organization of Microcomputer.

2) What is microprocessor? Explain with neat block diagram.

3) Write down the historical review of microprocessor development.

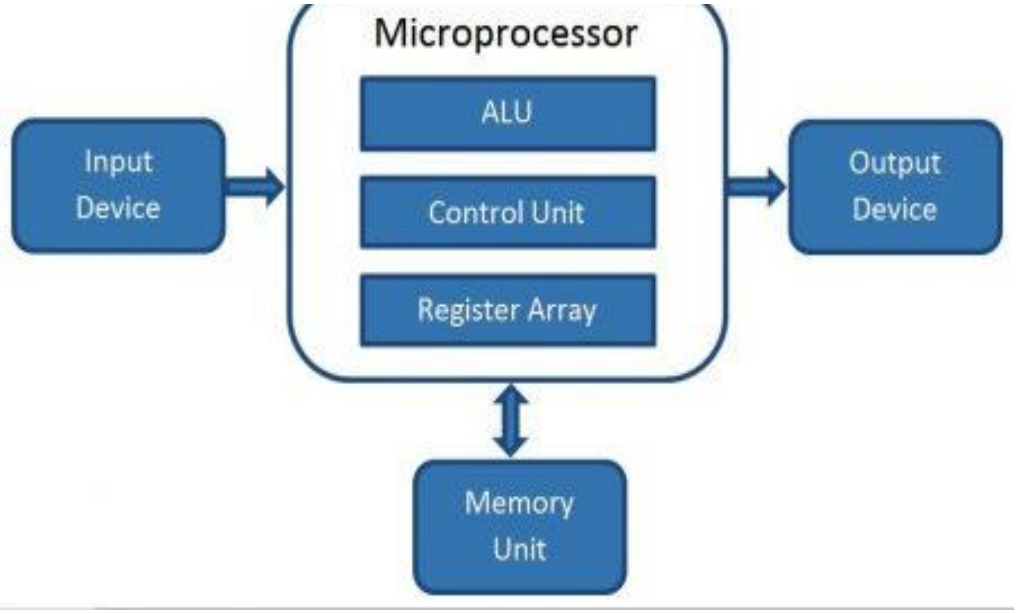
4) Draw and explain briefly 8085 microprocessor pin configuration.

Model Answer

Q 1) Write short note on the organization of Microcomputer.

Ans- The basic components of a microcomputer are:

1. Input Unit
2. Output Unit
3. CPU
4. Memory



1. Input Devices/Unit-

Input unit performs the following functions.

1. It accepts (or reads) the list of instructions and data from the outside world.
2. It converts these instructions and data in computer acceptable format.
3. It supplies the converted instructions and data to the computer system for further processing.

2. Output Devices/Unit-

The following functions are performed by an output unit.

1. It accepts the results produced by the computer which are in coded form and hence cannot be easily understood by us.
2. It converts these coded results to human acceptable (readable) form.
3. It supplied the converted results to the outside world.

3. Central Processing Unit (CPU):

The CPU consists of Arithmetic Logic Unit (ALU) , Register unit, and control unit. The CPU retrieves stored instructions and data word from memory; it also deposits processed data in memory.

ALU (Arithmetic and Logic Unit):

This section performs computing functions on data. It controls all internal and external devices, performs "Arithmetic and Logical operations". The operations a Microprocessor performs are called "instruction set" of this processor.

Register Unit:

It contains various register. The register is used primarily to store data temporarily during the execution of a program.

Control Unit:

It provides necessary timing and control signals necessary to all the operations in the microcomputer. It controls the flow of data between microprocessor and peripherals (input, output and memory). The control unit gets a clock which determines the speed of the microprocessor.

The CPU has three basic functions:

1. It fetches an instructions word stored in memory.
2. It determines what the instruction is telling it to do. (decodes the instruction)
3. It executes the instruction. . It provides states, control, and timing signals that the memory and input/output section can use.

4. Memory-

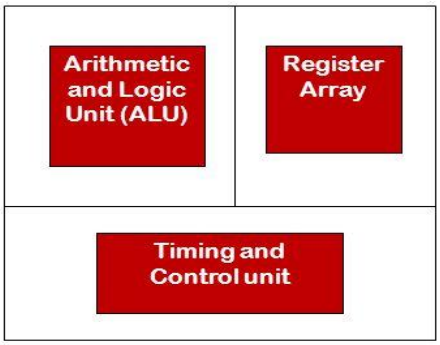
The specific functions of the storage unit/Memory are to store:

1. All the data to be processed and the instruction required for processing (received from input devices).
2. Intermediate results of processing.
3. Final results of processing before these results are released to an output device.

Q 2) What is microprocessor? Explain with neat block diagram.

Ans-A microprocessor is an integrated circuit (IC) which incorporates core functions of a computer's central processing unit (CPU). It is a programmable multipurpose silicon chip, clock driven, register based, accepts binary data as input and provides output after processing it as per the instructions stored in the memory.

Basic Block Diagram of Microprocessor



The basic units or blocks of microprocessor are ALU, array of registers and control unit:

ALU – Performs all arithmetic and logical operations

Register array – Holds the data temporarily for processing

Control Unit – It supervises/ monitors all the operations carried out in the computer

Q. 3) Write down the historical review of microprocessor development.

Ans-

The microprocessor forms the brain of the Central Processing Unit (CPU). Microprocessor is an engine which can compute various operations fabricated on a single chip.

The first microprocessor was introduced in the year 1971. It was introduced by Intel and was named Intel 4004.

Intel 4004 is a 4 bit microprocessor and it was not a powerful microprocessor. It can perform addition and subtraction operation on 4 bits at a time.

However it was Intel's 8080 was the first microprocessor to make it to Home computers. It was introduced during the year 1974 and it can perform 8 bit operations. Then during the year 1976, Intel introduced 8085 processors which is nothing but an update of 8080 processors.8080

processors are updated by adding two Enable/Disable Instructions, Three added interrupt pins and serial I/O pins.

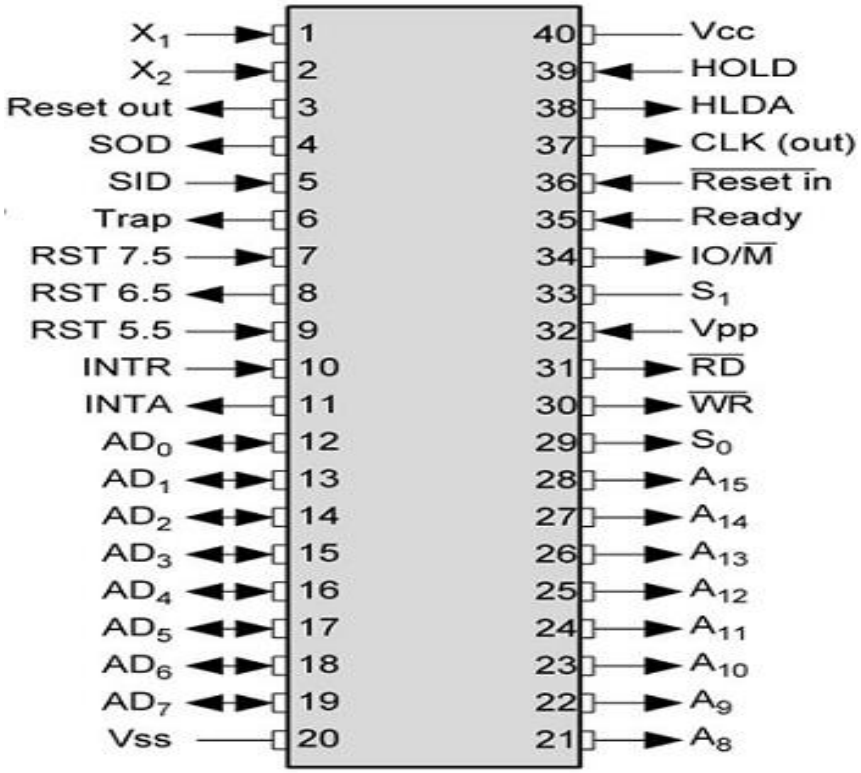
Intel introduced 8086 pins during the year 1976. The major difference between 8085 and 8086 processor is that 8085 is an 8 bit processor, but 8086 processor is a 16 bit processor.

Intel later introduced 8087 processor which was the first math co-processor and later the 8088 processor which was incorporated into IBM personal computers.

As the years progressed lots of processors from 8088,80286,80386,80486,Pentium II, Pentium III, Pentium IV and now Core2Duo,Dual Core and Quad core processors are the latest in the market.

Q. 4) Draw and explain briefly 8085 microprocessor pin configuration.

Ans-



8085 Pin description

- Higher Order Address pins- $A_{15} – A_8$
  - The address bus has 8 signal lines A8 – A15 which are unidirectional.
- Lower Order Address/ Data Pins- AD_7-AD_0

    - These are time multiplexed pins and are de-multiplexed using the pin ALE
    - So, the bits AD0 – AD7 are bi-directional and serve as A0 – A7 and D0 – D7 at the same time.
- Control Pins – RD, WR
    - These are active low Read & Write pins
- Status Pins – ALE, IO/M (active low), S_1, S_0
    - ALE (Address Latch Enable)-Used to de-multiplex AD_7-AD_0
    - IO/M – Used to select I/O or Memory operation
    - S_1,S_0 – Denote the status of data on data bus
- Interrupt Pins – TRAP, RST7.5, RST 6.5, RST 5.5, INTR, INTA
    - These are hardware interrupts used to initiate an interrupt service routine stored at predefined locations of the system memory.
- Serial I/O pins – SID (Serial Input Data), SOD (Serial Output Data)
    - These pins are used to interface 8085 with a serial device.
- Clock Pins- X_1, X_2, CLK(OUT)
    - X_1, X_2– These are clock input pins. A crystal is connected between these pins such that $f_{crystal} = 2f_{8085}$ where $f_{crystal}$= crystal frequency & f_{8085} = operating frequency of 8085
    - CLK(OUT) – This is an auxiliary clock output source
- Reset Pins – Reset In **(active low)**, Reset Out
    - **Reset In** is used to reset 8085 whereas **Reset Out** can be used to reset other devices in the system
- DMA (Direct Memory Access) pins – HOLD, HLDA
    - These pins are used when data transfer is to be performed directly between an external device and the main memory of the system.
- Power Supply Pins – $+V_{CC}$, V_{SS}

I Class Test Code CS203 Date 20.11.2017 MM 5x3=15

Solve All Questions.

Q1. Explain Basic Task of OS.

Basic Task of OS is as follows.

Memory Management

Memory management means Keeps tracks of primary memory, i.e., what part of it is in use by whom, what part is not in use.

In multiprogramming, the OS decides which process will get memory when and how much.

Processor Management

In multiprogramming environment, the OS decides which process gets the processor when and for how much time. This function is called process scheduling. An Operating System does the following activities for processor management −

- Allocates the processor (CPU) to a process.
- De-allocates processor when a process is no longer required.

Device Management

An Operating System manages device communication via their respective drivers.

It does the following activities for device management −

- Decides which process gets the device when and for how much time.
- Allocates the device in the efficient way.
- De-allocates devices.

File Management

A file system is normally organized into directories for easy navigation and usage. These directories may contain files and other directions.

An Operating System does the following activities for file management −

- Keeps track of information, location, uses, status etc. The collective facilities are often known as file system.
- Decides who gets the resources.
- Allocates the resources.
- De-allocates the resources.

Q2. What is Process?

A process is basically a program in execution.

Generally we write our computer programs in a text file and when we execute this program, it becomes a process which performs all the tasks mentioned in the program.

A process, it can be divided into four sections ─ stack, heap, text and data.

Stack

The process Stack contains the temporary data such as method/function parameters, return address and local variables.

Heap

This is dynamically allocated memory to a process during its run time.

Text

This includes the current activity represented by the value of Program Counter and the contents of the processor's registers.

Data

This section contains the global and static variables.

Q3. What is Schedulers? Explain.

Schedulers are special system software which handles process scheduling in various ways. Their main task is to select the jobs to be submitted into the system and to decide which process to run. Schedulers are of three types −

- Long-Term Scheduler
- Short-Term Scheduler
- Medium-Term Scheduler

Long Term Scheduler

It is also called a job scheduler. A long-term scheduler determines which programs are admitted to the system for processing. It selects processes from the queue and loads them into memory for execution.

Short Term Scheduler

It is also called as CPU scheduler. CPU scheduler selects a process among the processes that are ready to execute and allocates CPU to one of them.

Medium Term Scheduler

Medium-term scheduler is system software used for swapping. It removes the processes from the memory.

A running process may become suspended if it makes an I/O request. Suspended processes cannot make any progress towards completion. In this condition, to remove the process from memory and make space for other processes, the suspended process is moved to the secondary storage.

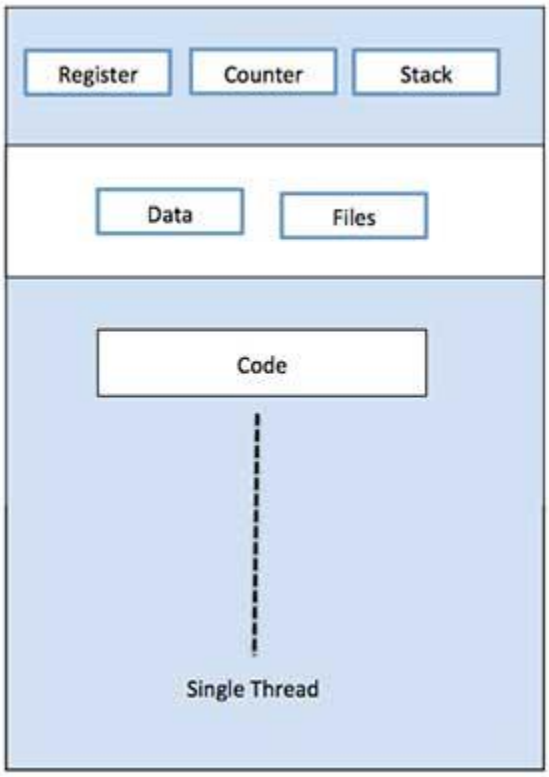
Q4. What is Thread?

A thread is a single sequential flow of control within a program.

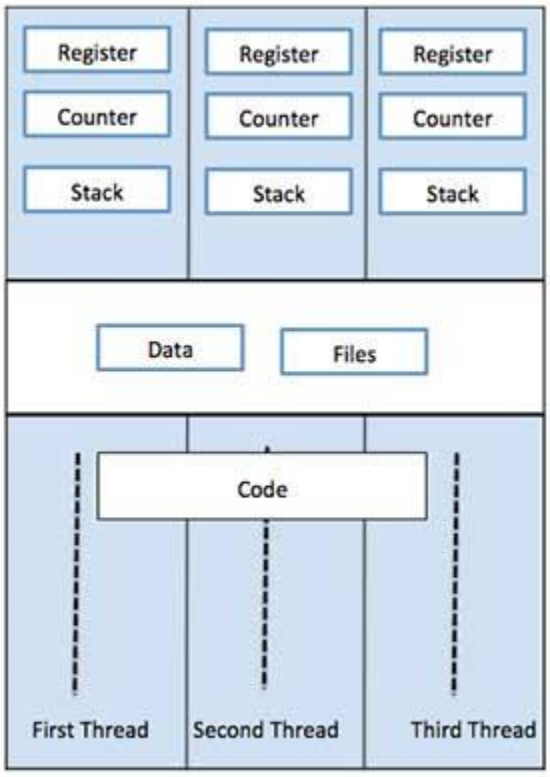
A thread is a flow of execution through the process code, with its own program counter that keeps track of which instruction to execute next,

A thread is also called a lightweight process. Threads represent a software approach to improving performance of operating system.

Each thread belongs to exactly one process and no thread can exist outside a process. Each thread represents a separate flow of control



Single Process P with single thread



Single Process P with three threads

t

Q5. What is CPU Burst and I/O Burst:-

While scheduling, each process uses the CPU slice. The slice that it gets is called the CPU burst.

The duration for which a process gets control of the CPU is the CPU burst time, and the concept of gaining control of the CPU is the CPU burst.

I/O burst is when the CPU is waiting for I/O for further execution. After I/O burst, the process goes into the ready queue for the next CPU burst.

I Class Test Code CS210 Date 21.11.2017 MM 5x3=15

Solve All Questions.

Q1. What is Electrical Earthling:-

The method of connecting noncurrent carrying parts of the electrical equipment or the neutral point of the supply system to the earth through the wire having negligible resistance is called electrical earthing.

Earthing protects the electrical equipment from lightning strokes and earth fault conditions. It provides the easiest path to the fault or leakage current to flow through it.

Types of Electrical Earthing

The electrical equipment mainly consists of two non-current carrying parts. These parts are neutral of the system or frame of the electrical equipment. On the basis of the earthling of these two noncurrent carrying parts of the electrical system earthing can be classified into two types.

- Neutral Earthing
- Equipment Earthing.

Q2. Write the problems arise due to noise in Power Supply.

- system startup failures
- Spontaneous rebooting
- Intermittent parity check or other memory-type errors
- HDD and fan simultaneously failing to spin (no +12V)
- Overheating due to fan failure
- Electric shocks that are felt when the case is touched

Q3 what is UPS?

An uninterruptible power supply (UPS) is a device that allows a computer to keep running for at least a short time when the primary power source is lost. It also provides protection from power surges. It is of two types.

Offline UPS

In this type of UPSs the load is directly connected to the incoming AC power supply. When this mains supply fails or goes below a minimum level, the offline UPS blocks the incoming AC mains and delivers power to the load via internally connected battery using DC-AC inverter circuitry.

Online UPS

This type of UPSs always delivers power to the load via battery using DC-AC inverter. Therefore in these UPSs no switching mechanism required, and hence transfer time has no role during power failure. To maintain the charge of the battery, a battery charging unit is incorporated in the system. So when mains supply fails, UPS continues to deliver power to the load using battery.

Q4. What is Firewalls?

A firewall is a network security system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both.

Firewalls are software programs or hardware devices that filter the traffic that flows into the PC or network through a internet connection and block unauthorized flow of data.

Windows Firewall is example of a firewall software .

Q5. What is Folder Lock

Folder Lock is a data security solution for Windows 8, Windows 7, Windows Vista and Windows XP

Folder Lock allows us to lock, hide and password-protect files, folders and drives .

Folder Lock makes use of a password to access all its seven (7) features; Lock Files, Encrypt Files, Secure Backup, Protect USB/CD, Make Wallets, Shred Files and Clean History.

Subject Code 207 Subject :- DBMS. MM-15

TEST -I

Q.1) What are the Advantage of DBMS?

Advantages of DBMS

The database management system has a number of advantages as compared to traditional computer file-based processing approach. The Main advantages of DBMS are described below.

Controlling Data Redundancy

In non-database systems each application program has its own private files. In this case, the duplicated copies of the same data are created in many places. In DBMS, all data of an organization is integrated into a single database file. The data is recorded in only one place in the database and it is not duplicated.

Sharing of Data

In DBMS, data can be shared by authorized users of the organization. The database administrator manages the data and gives rights to users to access the data. Many users can be authorized to access the same piece of information simultaneously. The remote users can also share same data. Similarly, the data of same database can be shared between different application programs.

Data Consistency

By controlling the data redundancy, the data consistency is obtained. If a data item appears only once, any update to its value has to be performed only once and the updated value is immediately available to all users. If the DBMS has controlled redundancy, the database system enforces consistency.

Integration Constraints

Integrity constraints or consistency rules can be applied to database so that the correct data can be entered into database. The constraints may be applied to data item within a single record or the may be applied to relationships between records.

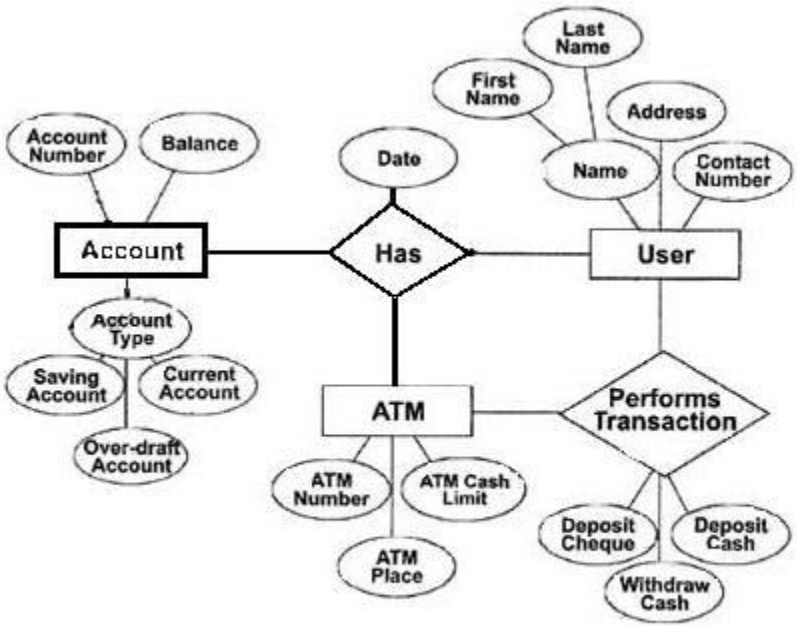
Report Writers

Most of the DBMSs provide the report writer tools used to create reports. The users can create very easily and quickly. **Backup and Recovery Procedures**

Most of the DBMSs provide the 'backup and recovery' sub-systems that automatically create the backup of data and restore data if required.

Data Independence
The separation of data structure of database from the application program that uses the data is called data independence. In DBMS, one can easily change the structure of database without modifying the application program.

Q.2) Draw & explain the E-R Diagram for bank customer having account with their attributes ?



ER Diagram of Banking System

An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system's entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.
The elements of an ERD are:

- Entities
- Relationships
- Attributes

Q.3) Write the short note on following:
(A) Super Key : A super key is a set of one of more columns (attributes) to uniquely identify rows in a table.
(B) **Primary Key** – A primary is a column or set of columns in a table that uniquely identifies tuples (rows) in that table.

(C) Candidate Key – A super key with no redundant attribute is known as candidate key

(D) Composite Key – A key that consists of more than one attribute to uniquely identify rows (also known as records & tuples) in a table is called composite key.

(E) **Foreign Key** – Foreign keys are the columns of a table that points to the primary key of another table. They act as a cross-reference between tables.

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TEST -I

Q. 1) Write the short notes on any Three

SMTP : **SMTP** stands for **Simple Mail Transfer Protocol**. SMTP is used to upload mail directly from the client to an intermediate host, but only computers constantly connected such as Internet Service Providers (ISP) to the Internet can use SMTP to receive mail. The ISP servers then *offload* the mail to the users to whom they provide the Internet service.

SMTP uses TCP port number 25 for his service. Therefore e-mail is delivered from source to destination by having the source machine established a TCP connection to port 25 of the destination machine.

FTP : File Transfer Protocol is a standard network protocol used to exchange and manipulate files over a TCP/IP-based network, such as the Internet. FTP is built on client-server architecture and utilizes separate control and data connections between the client and server applications. FTP is used with user-based password authentication or with anonymous user access.

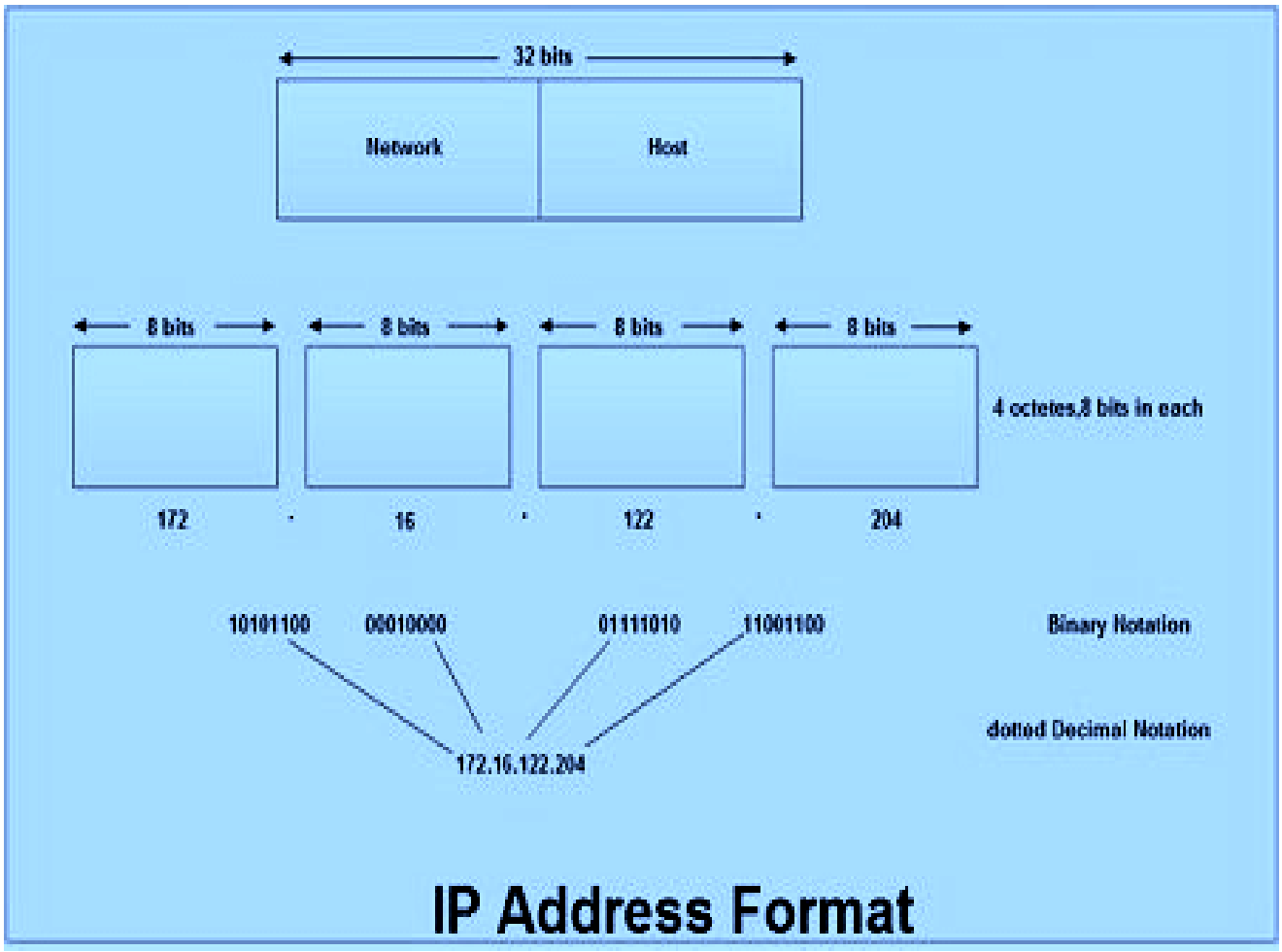
TELNET :. It is a network protocol used on the Internet or local area networks to provide a bidirectional interactive communications facility. Typically, telnet provides access to a command-line interface on a remote host via a virtual terminal connection which consists of an 8-bit byte oriented data connection over the Transmission Control Protocol (TCP). User data is interspersed in-band with TELNET control information. The user's computer, which initiates the connection, is referred to as the local computer.

The network terminal protocol (TELNET) allows a user to log in on any other computer on the network. We can start a remote session by specifying a computer to connect to. From that time until we finish the session, anything we type is sent to the other computer.

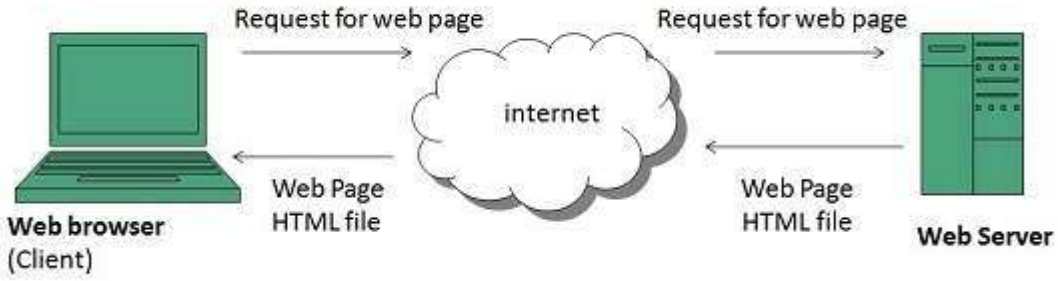
IP ADDRESS : It is a 32-bit address This is called an **IP address or logical address.** Which is made up of the network ID, plus a unique host ID. This address is typically represented with the decimal value of each octet separated by a period (for example, 192.168.7.27). Every Host and router on the internet has an IP Address.

Class	**1st Octet Decimal Range**	**1st Octet High Order Bits**
A	1 – 126*	0

B	128 – 191	10
C	192 – 223	110
D	224 – 239	1110



WWW : The World Wide Web (abbreviated as the Web or WWW) is a system of Internet servers that supports hypertext to access several Internet protocols on a single interface. Almost every protocol type available on the Internet is accessible on the Web. This includes e-mail, FTP, Telnet, and Usenet News. In addition to these, the World Wide Web has its own protocol: HyperText Transfer Protocol, or HTTP.



Q. 2) Write the short notes on any two :

CSS :

- CSS stands for Cascading Style Sheets
- CSS describes how HTML elements are to be displayed on screen, paper, or in other media
- CSS saves a lot of work. It can control the layout of multiple web pages all at once
- External style sheets are stored in CSS files
- *Cascading Style Sheets* (*CSS*) allow authors to control the presentation of their documents
- they apply typographic styles and layout instructions to elements on a page
- *cascading* refers to
    - the fact that styles cascade down the document tree, and
    - what happens when several different sources of style information are provided

COOKIES :

Cookies are small files which are stored on a user's computer. They are designed to hold a modest amount of data specific to a particular client and website, and can be accessed either by the web server or the client computer. This allows the server to deliver a page tailored to a particular user, or the page itself can contain some script which is aware of the data in the cookie and so is able to carry information from one visit to the website (or related site) to the next.

CGI :

The **Common Gateway Interface** (**CGI**) is a specification defined by the World Wide Web Consortium (W3C), defining how a program interacts with a Hyper Text Transfer Protocol (HTTP) server. The *Common Gateway Interface* (*CGI*) provides the middleware between WWW servers and external databases and information sources. CGI applications perform specific information processing, retrieval, and formatting tasks on behalf of WWW servers.

DHTML : DHTML is NOT a language. DHTML is a TERM describing the art of making dynamic and interactive web pages. DHTML combines HTML, JavaScript, DOM, and CSS

- DHTML supports adding styles to static content in various manners.
- It is dynamic so it can be changed even during the run time execution.
- Webmasters are often limited to use default fonts such as Arial or Times Roman. DHTML allows downloadable fonts which make the web pages looking more attractive.
- DHTML page is also saved as an .html file.

Q.3) Write a program in JavaScript to print the Dialog Box

```
<html>

<body>

<h2>JavaScript Confirm Box</h2>


<button onclick="myFunction()">Try it</button>

<p id="demo"></p>

<script>
function myFunction() {
   var txt;
   if (confirm("Press a button!")) {
      txt = "You pressed OK!";
   } else {
      txt = "You pressed Cancel!";
   }
   document.getElementById("demo").innerHTML = txt;
}
```