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1227

Total No. of Questions – 18

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COMPUTER FUNDAMENTALS AND MS – OFFICE
Paper I
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. **Write the names of two INPUT and two OUTPUT devices.**
2. **Expand terms RAM, ROM, PROM and EAPROM.**
3. **What is an external command?**
4. **What is office button?**
5. **What are the shortcuts for open and save a file?**
6. **What is a folder?**
7. **What are the options in page layout?**
8. **What is a spreadsheet?**
9. **What is a Ribbon?**
10. **What is Powerpoint presentation?**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. **Explain the characteristics of computers.**
12. **Write about any six internal commands.**
13. **Write about MOVE and COPYcommands.**
14. **Write about FIND and REPLACE.**
15. **Describe about SPELL CHECKER.**
16. **List and explain any six functions in MS – Excel.**
17. **Write the procedure to open, save and Print a worksheet.**
18. **Write the steps to create, save and preview a presentation.**

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1228

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PROGRAMMING IN 'C'
Paper I
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. **Define Algorithm.**
2. **What is a Flow - Chart?**
3. **Who invented C Language?**
4. **What is Variable?**
5. **What is a Constant?**
6. **What is an Array?**
7. **Write the types of Arrays.**
8. **Define Function.**
9. **What is Recursion?**
10. **What is union?**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. **What are the differences between Algorithm and Flow – Chart?**
12. **Write the data types in C.**
13. **Write about Loops in C.**
14. **Write a C program to find the biggest value of a given three integers.**
15. **Write the syntax to declare one dimensional and two dimensional arrays.**
16. **Write a C program to read and display array of elements.**
17. **Write the difference between Local and Global Variables.**
18. **What is Structure? Explain in detail.**

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1229

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ACCOUNTANCY AND TALLY
Paper I
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. **What is Accounting?**
2. **Define double entry system of Accounts.**
3. **Define Journal.**
4. **What is Ledger?**
5. **Define Invoice.**
6. **What is Cash Book? Write different types of Cash Books.**
7. **Define Passbook.**
8. **Define Trial Balance.**
9. **Define Profit and Loss Account.**
10. **What are the function keys used in Tally?**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. **Explain the different Accounting concepts in detail.**
12. **Explain double entry system and write its advantages.**
13. **Explain different types of subsidiary books in detail.**
14. **Explain different types of Cash Books in detail.**
15. **Explain the importance of Bank Reconciliation statement.**
16. **Prepare the Trial Balances from the following balances of different Leger Accounts:**

	Rs.
Cash A/c	**53,500**
Capital A/c	**60,000**
Purchases A/c	**6,000**
Prasad A/c	**2,000**
Sales A/c	**2,000**
Salaries A/c	**1,000**
Commission A/c	**1,000**
Sunitha A/c	**500**

17. **Write the procedure to prepare Final Account.**
18. **Write the procedure to create company in Tally.**

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2227

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OOPS AND JAVA
Paper II
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. **Define OOP?**
2. **Define variable.**
3. **Write about if statement.**
4. **Write about break statement.**
5. **Define an array**
6. **What is constructor**
7. **Define package**
8. **What is debugging**
9. **What is multitasking?**
10. **What is applet?**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. **Explain the features of Java.**
12. **Explain logical operators in Java**
13. **Explain conditional statements in Java.**
14. **Write a Java program to find the factorial of a given number.**
15. **Explain inheritance with example in Java.**
16. **Explain the types of packages.**
17. **Explain the types of errors in Java.**
18. **What are the differences between multitasking and multithreading?**

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RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)
Paper II
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. **What is Data Processing?**
2. **Define Schema.**
3. **What is Entity?**
4. **What is degree of a table?**
5. **What is Tuple?**
6. **What is Domain?**
7. **What are the Data types in SQL?**
8. **What are the DDL commands?**
9. **What is System analysis?**
10. **What is Data dictionary?**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. **Explain about data models.**
12. **What are the functions of DBA?**
13. **Explain Mapping Constraints with diagrams.**
14. **What is Attribute? What are the types of attributes?**
15. **Write about types of keys.**
16. **Write any six codd rules.**
17. **Explain any three DML commands.**
18. **Explain different states of Software Development Life Cycle (SDLC).**

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2229

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DATA COMMUNICATION AND COMPUTER NETWORKS
Paper II
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. **Define Bandwidth.**
2. **Expand LAN, WAN, VAN, MAN.**
3. **Define a Network.**
4. **What is Router.**
5. **Define Protocol.**
6. **Expand OSI, TCP / IP, HTTP, ISDN.**
7. **Write any two disadvantages of Internet.**
8. **Define Virus.**
9. **What is trouble shooting?**
10. **What is HDD?**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. **Write about transmission modes.**
12. **Explain different types of Computer Networks.**
13. **Explain about Network topologies.**
14. **Discuss about Hubs and Switches.**
15. **Explain about TCP / IP Reference Model.**
16. **Explain any three web browsers.**
17. **How do you Send and Receive and E – mail with attachment?**
18. **Explain the various trouble shoots in printer**

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COMPUTER FUNDAMENTALS AND MS – OFFICE
Paper I
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. Write the names of two INPUT and two OUTPUT devices.
A) **Input Devices:** Key Board, Mouse, Scanner, Joy Stick, Joy Pad, Light Pen, Laser Gun.
Output Devices: Monitor, Printer, Speakers, Plotter.

2. Expand terms RAM, ROM, PROM and EAPROM.
A) **RAM:** Random Access Memory.
ROM: Read only Memory.
PROM: Programmable Read Only Memory.
EAPROM: Electrically Alterable Programmable Read only Memory.

3. What is an external command?
A) **External Commands** The external commands are files that do reside on disk and have an extension of .COM, .EXE, or .BAT.

4. What is office button?
A) Office Button: The Microsoft Office button performs many of the functions that were located in the File menu of older versions of Word. This button allows you to create a new document, open an existing document, save or save as, print, send (through email or fax), publish or close.

5. What are the shortcuts for open and save a file?
A) To Open a file: Ctrl + O
To Save a file: Ctrl + S

6. What is a folder?
A) **Folder:** A folder is a container we can use to store files in it.

7. What are the options in page layout?
A) Page Layout: Themes, Page Setup, Page Background, Paragraph, Arrange.

8. What is a spreadsheet?
A) Spread Sheet: A spreadsheet is an electronic document that stores various types of data. There are vertical columns and horizontal rows.

9. What is a Ribbon?
A) Ribbon: The Ribbon is the panel at the top portion of the Spread sheet.

10. What is Powerpoint presentation?

A) Presentation: A presentation is a collection of data and information that is to be delivered to a specific audience. A PowerPoint presentation is a collection of electronic slides that can have text, pictures, graphics, tables, sound and video. This collection can run automatically or can be controlled by a presenter.

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. Explain the characteristics of computers.

A) **1.Speed:** The computer is able to process the data and gives the output in fractions of seconds, such that required information is given to the user on time enabling the user to take right decisions on right time. A powerful computer is capable of executing about 3 million calculations per second.

2) Accuracy : The accuracy of computers is consistently high enough which avoids any errors.
If it all there are errors, they are due to errors in instructions given by the programmer.

3) Reliable: The output generated by the computer is very reliable, but it is reliable only when the data, which is passing as input to the computer and the program, which gives instructions are correct and reliable.

4) Storage Capacity: The computer has a provision to store large volumes of data in the small storage devices, which have capacity to store huge amounts of data and help the retrieval of data an easy task.

5) Versatile: Computers are very versatile machines. Computers are capable of performing almost any task ,provided the task can be reduced to a series of logical steps.

6) Automation: Once the instructions fed into computer it works automatically without any human intervention until the completion of execution of program or meets logical instructions to terminate the job.

7) Diligent : A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

12. Write about any six internal commands.

A) **CLS:** This command is used to Clear the Screen.
Syntax: CLS

DATE: This command is used to display or change the system date. The date format is MM / DD / YYYY.
Syntax: DATE

TIME: This command is used to display or change the system time. The time format is HH / MM / SS. The time must to be entered in 24 hrs internally.

Syntax: TIME

DEL: This command is used to delete a file from the disk.
Syntax: DEL < FILE_NAME>

COPY : This command is used to copy the contents of one file to another files.
Syntax: COPY < SOURCE FILE NAME> <TARGET FILE NAME>

COPY CON: To create a new file with the same content.
Syntax: COPY CON <FILE NAME>

REN: This command is used to change the name of an existing file
Syntax: REN <OLD FILE NAME> <NEW FILE NAME>

VER: This command is used to display the current MS.DOS version number.
Syntax: VER

MD: (Make Directory) This command is used to create a new directory.
Syntax: MD <Directory Name>

CD: (Change Directory) To move from one directory to another directory.
Syntax: CD <DIRECTORY NAME>

DIR (DIRECTORY): This command is used to display the files and folder in the current working directory.
Syntax: DIR

DIR /P: This command is used to display the directories in page wise.
Syntax: dir / p

DIR / W: This command is used to display the directories in width wise
Syntax: dir/w

13. Write about MOVE and COPYcommands.

A) To change the position of sentences from one location to another location with in the document or to other document. Then We can move or copy a text within the document or from one document to another document at any particular point.

Copy: If we want to copy the text, the selected text will be duplicated. Source data will in the same position.

Procedure:

- Highlight the text you wish to copy
- right click and click **Copy**,
- Put your cursor where you want the text in the document
- Right click and click **Paste**.

Move: If we want to move the text, the selected text will be moved from the old place to new place. The selected data will be available in new place only.

Procedure:

- Highlight the text you wish to copy
- Right click and click **Cut**
- Put your cursor where you want the text in the document
- Right click and click **Paste**.

14. Write about FIND and REPLACE.

A) Find and Replace Text: This option is used to find a particular text and also can replace with another text in the document.

Procedure to find a particular word or phrase in a document:

- Click **Find** on the **Editing Group** on the Ribbon.

To find and replace a word or phrase in the document,

- click **Replace** on the **Editing Group** of the Ribbon.
- Provide the phrases you want to find and replace.
- Select Buttons "Replace" or "Replace all".

15. Describe about SPELL CHECKER.

A) Spell check: Used to check the spelling and grammar mistakes typed in a document. The wrong words will be highlighted by red color under line. We can correct the mistakes typed in the document with this facility.

Procedure:

- Place the cursor at the beginning of the document or the beginning of the section that you want to check
- Click the **Review** Tab on the Ribbon.
- Click **Spelling & Grammar** on the Proofing Group.
- Any errors will display a dialog box that allows you to choose a more appropriate spelling or phrasing.
- If you wish to check the spelling of an individual word, you can right click any word that has been underlined by Word and choose a substitution.

16. List and explain any six functions in MS – Excel.

A) Mathematical functions

1. **FACT**: Returns the factorial of a number.

Syntax FACT(number)

Example: FACT(B2) gives 120 because B2 in Figure -1 contains 5 i.e (1 x 2 x 3 x 4 x 5 = 120).

2. **POWER:** Returns the results of a number raised to a power

Syntax: POWER(number,power)

Example: POWER(B2,E2) gives result 25 because ($5^2 = 25$)

3. **SQRT**: Finds the square root of a value in the cell.

Syntax: SQRT(number)

Example: SQRT(C2) gives 2 because square root of 4 is 2.

4. **SUM**: The **SUM** function adds all the numbers that you specify as arguments.

Syntax: SUM(number1, [number2],[number3],[number4],…)

Example: SUM(A2:E2) Gives the result 20 because(3 + 5 +4 + 6 + 2 = 20)

5. SUMIF: You use the **SUMIF** function to sum the values in a range that meet criteria that you specify.

Syntax: SUMIF(RANGE , CRITERIA)

Example: SUMIF(A2:E2,">4") Gives result 11 because (5 + 6).

6. MOD: Returns the remainder after number is divided by divisor. The result has the same sign as divisor.

Syntax: MOD(number, divisor)

Number is the number for which you want to find the remainder.
Divisor is the number by which you want to divide number.
Ex1: MOD(10,6) gives result 4 because remainder is 4 when 10 is divided by 6..

Statistical functions: Average, Count, Max, min.

1. **Average**: Returns average(arithmetic mean) of its arguments
   Syntax: average(number1,number2,..)
   Example: Average(a2:e2) gives result 4 because (3+5+4+6+2)/5 = 4

2. **Count:** The **COUNT** function counts the number of cells that contain numbers, and counts numbers within the list of arguments.
   Syntax: Count(value1,[value2] ,...)
   The COUNT function syntax has these arguments:
   value1 Required. The first item, cell reference, or range within which you want to count numbers.
   value2, ... Optional. Up to 255 additional items, cell references, or ranges within which you want to count numbers.
   Example
   Count(a4:e4) gives result 3 because (12,8,4 are 3 values)

3. COUNTA: The **COUNTA** function counts the number of cells that are not empty in a range.

Syntax: COUNTA(value1, [value2], ...)
The **COUNTA** function syntax has the following arguments:

- **value1** Required. The first argument representing the values that you want to count.
- **value2, ...** Optional

Ex: counta(A4:E4) gives the result 4 because the range contains 4 values.

4. COUNT BLANK: Counts empty cells in a specified range of cells.

Syntax: COUNTBLANK(range)
Range is the range from which you want to count the blank cells.
Example:
Countblank(A4:E4) gives result 1 because the range contains one blank.

5.COUNTIF: The **COUNTIF** function counts the number of cells within a range that meet a single criterion that you specify. For example, you can count all the cells that start with a certain letter, or you can count all the cells that contain a number that is larger or smaller than a number you specify. For example, suppose you have a worksheet that contains a list of tasks in column A, and the first name of the person assigned to each task in column B. You can use the **COUNTIF** function to count how many times a person's name appears in column B and, in that way, determine how many tasks are assigned to that person. For example:

=COUNTIF(F2:F25,"Nancy")
COUNTIF(range, criteria)
The **COUNTIF** function syntax has the following arguments:
range Required. One or more cells to count, including numbers or names, arrays, or references that contain numbers. Blank and text values are ignored.
criteria Required. A number, expression, cell reference, or text string that defines which cells will be counted. For example, criteria can be expressed as 32, ">32", B4, "apples", or "32".
Ex:

Countif(A4:E4,">10") gives result 1 because the range contains only one value that is greater than 10.

6.MAX: Returns the maximum value in the range

MAX(**number1**,number2,...)

Number1, number2, ... are 1 to 255 numbers for which you want to find the maximum value.

Ex : max(A2:E2) gives result 6 because 6 is the maximum value in that range.

7.MIN: Returns the minimum value in the range

MIN(**number1**,number2,...)

Number1, number2, ... are 1 to 255 numbers for which you want to find the minimum value.

Ex : max(A2:E2) gives result 2 because 6 is the minimum value in that range.

17. Write the procedure to open, save and Print a worksheet.

A) Open a Workbook

To open an existing workbook:

- Click the **Microsoft Office Button**
- Click **Open**
- Browse to the workbook
- Click the title of the workbook
- Click **Open**

Print a worksheet:

You can print entire or partial worksheets and workbooks, one at a time, or several at once. And if the data that you want to print is in a Microsoft Office Excel table, you can print just the Excel table.

To save a worksheet:

- Click the **Microsoft Office Button.**
- Click **Save.**
- Type in the name for the Workbook In the **Save as Type** box
- Click **save.**

18. Write the steps to create, save and preview a presentation.

A) To create a new presentation from a blank slide:

- Click the **Microsoft Office Button.**
- Click **New**
- Click **Blank Presentation.**

Save a Presentation::

- Click the **Microsoft Office Button**
- Click **Save**
- Type in the name for the Presentation
- In the **Save as Type** box, choose **Excel 97-2003 Presentation**
- **Select Save button.**

Preview a presentation as a slide show:

1. On the **Slide Show** tab, in the **Start Slide Show** group, do one of the following:
   - To start with the first slide in the presentation, click **From Beginning**.
   - To start with the slide that currently appears in the **Slide** pane, click **From Current Slide**.

   The presentation opens in Slide Show view.
2. Click to advance to the next slide.

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PROGRAMMING IN 'C'
Paper I
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. Define Algorithm.
A) Algorithm: A set of sequential steps usually written in Ordinary Language to solve a given problem is called an Algorithm.

2. What is a Flow - Chart?
A) **Flow – Chart:** A flowchart is a graphical representation of an algorithm.

3. Who invented C Language?
A) Dennis Ritchie invent C Langauage at AT & T Bell Laboratories in 1972.

4. What is Variable?
A) Variables: These are the names of the objects, whose values can be changed during the program execution.

5. What is a Constant?
A) Constants: Constants are those, which do not change, during the execution of the program.

6. What is an Array?
A) Array: Array can be defined as a collection of data objects of same type which are stored in consecutive memory locations with a common variable name.

7. Write the types of Arrays.
A) Arrays are two types. 1. single dimensional arrays 2. two dimensional arrays.

8. Define Function.
A) Function: A function can be defined as a subprogram which is meant for doing a specific task.

9. What is Recursion?
A) Recursion: Recursion can be defines as the process of a function by which it can call itself.

10. What is union?
A) Union: Union is a data type through which objects of different types and sizes can be stored at different times.

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. What are the differences between Algorithm and Flow – Chart?

A) Differences between Algorithm and Flowchart

Algorithm:

1. A method of representing the step-by-step logical procedure for solving a problem.
2. It contains step-by-step English descriptions, each step representing a particular operation leading to a solution of a problem.
3. These are particularly useful for small problems.
4. For complex programs, nobody prefers algorithms.

Flowchart:

1. Flowchart is a diagrammatic representation of an algorithm. It is constructed using different types of boxes and symbols.
2. The flowchart employs a series of blocks and arrows, each of which represents a particular step in an algorithm.
3. These are useful for detailed representations of complicated programs.
4. For complex programs, everybody prefers Flowcharts.

12. Write the data types in C.

A) Data Types in C:

Basic Data Types : There are four basic data types in C language. They are Integer, character, floating point and data types.

a. Character: Any character of the ASCII character set can be considered as a character data types and its maximum size can be 1 byte or 8 byte long. 'Char' is the keyword used to represent character data type in C.

Char - a single byte size, capable of holding one character.

b. Integer: The keyword 'int' stands for the integer data type in C and its size is either 16 or 32 bits. The integer data type can again be classified as

1. Long int - long integer with more digits
2. Short int - short integer with fewer digits.
3. Unsigned int - Unsigned integer
4. Unsigned short int – Unsigned short integer
5. Unsigned long int – Unsigned long integer

As above, the qualifiers like short, long, signed or unsigned can be applied to basic data types to derive new data types.

int - an Integer with the natural size of the host machine.

c. Floating point: - The numbers which are stored in floating point representation with mantissa and exponent are called floating point (real) numbers. These numbers can be declared as 'float' in C.

float – Single – precision floating point number value.

d. Double : - Double is a keyword in C to represent double precision floating point numbers.

double - Double – precision floating point number value.

Type	Size (in Bytes)	Range
char or signed char	1	-128 to 127
unsigned char	1	0 to 255
int or signed int	2	-32,768 to 32,767
unsigned int	2	0 to 65,535
short int or signed short int	1	-128 to 127
long int or unsigned long int	4	-2,147,483,648 to 2,147,483,647
unsigned long int	4	0 to 4,294,967,295
float	4	-3.4 *e -38 to + 3.4 *e +38
double	8	-1.7 *e -308 to – 3.4 * e +308
long double	10	-3.4 * e-4932 to +3.4 * e +4932

13. Write about Loops in C.

A) Looping statements: Looping statements are used to execute the statements repeatedly as long as an expression is true. When the expression becomes false then the control transferred to the statement immediately following the loop. There are three kinds of loops in **C**.

a) while loop
b) do-while loop
c) for loop

a. while loop : The while loop will be executed repeatedly as long as the expression is 'true'. If the expression is 'false' then the control is transferred out of the while loop.

Syntax: **while** (expr)
{
Statements;
}

Example:

```
int digit = 1;
while (digit <=5)
{
printf ("%d", digit);
++digit;
}
```

The output is 1 2 3 4 5

b. do-while loop : The **do-while** loop evaluates the condition after the execution of the statements in the body.

Syntax: do{
Statements;
}**while**<expr>;

Here also the statements will be executed as long as the expr value is true. If the expression is false the controls come out of the loop.

Example:

```
int d =1;
do
{
printf ("%d", d);
```

```
++d;
} while (d<=5);
```

The output is 1 2 3 4 5

The statement with in the do-while loop will be executed at least once. So the **do-while** loop is called a bottom tested loop.

c. for loop: The **for** loop is used to execute the statements for repetead number of times.

Syntax: **for** (exp1;exp2;exp3)

```
{
statements;
}
```

exp1 : Initialization Expression
exp2 : Condition / Control Expression
exp3 : Update (Increment / Decrement) Expression

Example:

```
for (i=1;i<=5 ;++i )
printf ("%d",i);
```

The output is 1 2 3 4 5

14. Write a C program to find the biggest value of a given three integers.

A) Program:

```
#include<stdio.h>
main()
{
int a,b,c;
clrscr();
printf("Enter values for a,b,c: ");
scanf("%d%d%d",&a,&b,&c);
if((a>b) && (a>c))
printf("a is big");
else if(b>c)
printf("b is big");
else
printf("c is big");
getch();
}
```

Output:

```
Enter values for a,b,c: 15   10    5
a is big

Enter values for a,b,c: 15   20    10
b is big

Enter values for a,b,c: 15   20    25
c is big
```

15. Write the syntax to declare one dimensional and two dimensional arrays.

A) The array can divide into 3 types.

1. One dimensional Arrays.
2. Two dimensional Arrays

One Dimensional Array: A list of items can be given one variable name using only one subscripted variable is called one dimensional array.

Syntax: Data _type Array _ name [size];
Ex:- int a[10];

Two dimensional arrays:
The two dimensional array has a list of variable-name using two subscripts, we know already that a one-dimensional array can store rows of elements only, but in two dimensional array **rows of values** and **columns of values**.

Syntax: data_type Array_name [row-size] [columns-size];
Ex: int a[10] [10] [10];

16. Write a C program to read and display array of elements.

Program:

```
/*creating a single dimensional array of numbers and displaying them*/
#include<stdio.h>
#include<conio.h>
main()
{
int i,j,n,a[10];
clrscr();
printf("\n How many elements:");
scanf("%d",&n);
printf("\n Enter %d values line by line\n",n);
for(i=0;i<n;++i)
scanf("\n%d",&a[i]);
printf("\n Given array\n");
for(j=0;j<n;++j)
printf("\t%d",a[j]);
getch();
}
```

Output:

```
How many elements:8
Enter 8 values line by line      15   26   24   18   19   22   35   36
Given array
15      26      24      18      19      22      35      36
```

17. Write the difference between Local and Global Variables.

A) Global and local variables: A local variable is a variable that is declared inside a function. A global variable is a variable that is declared outside all functions. A local variable can only be used in the function where it is declared. A global variable can be used in any function.
See the following example:

```
#include<stdio.h>

// Global variables
```

```
 int A;
int B;

 int Add( )
{
      return A + B;
}

 int main()  {
int answer; // Local variable
A = 5;   B = 7;
answer = Add( );
printf("%d\n",answer);
return 0;
}
```

As you can see two global variables are declared, A and B. These variables can be used in main( ) and Add( ).
The local variable answer can only be used in main( ).

18. What is Structure? Explain in detail.

A) Structure: A group of one or more variables of different data types organized together under a single name is called a **Structure.**

a) Structure Declaration

The declaration of a structure specifies the grouping of various data items into a single unit without assigning any resources to them. The syntax for declaring a structure in C is as follows:

```
struct<Structure Name>
{
Data Type member-1;
Data Type member-2;
…. ….
DataType member-n;
};
```

The structure declaration starts with the structure header, which consists of the keyword '**struct'** followed by a tag. The tag serves as a structure name, which can be used for creating structure variables. The individual members of the structure are enclosed between the curly braces and they can be of the similar or dissimilar data types. The data type of each variable is specified in the individual member declarations.

Example:

Let us consider an employee database consisting of employee number, name, and salary. A structure declaration to hold this information is shown below:

```
struct employee
{
inteno;
char name [80];
float sal;
};
```

b) Structure Variables

Similar to other types of variables, the structure data type variables can be declared using structure definition.

```
struct
{
introllno;
char name[20];
float average;
} a, b;
```

In the above structure definition, a and b are said to be structure type variables. 'a' is a structure type variable containing rollno, name, average as members, which are of different data types. Similarly 'b' is also a structure type variable with the same members of 'a '.

c) Structure Initialization

The members of the structure can be initialized like other variables. This can be done at the time of declaration.

Example

```
struct address
{
char name [20];
char desgn [10];
char place [10];
} ;
```

i.e

```
struct address my-add = { 'Sree', 'AKM', 'RREDDY');
```

i.e

```
my-add . name = 'Sree'
my-add . desgn = AKM
my-add . place = RREDDY
```

As seen above, the initial values for structure members must be enclosed with in a pair of curly braces. The values to be assigned to members must be placed in the same order as they are specified in structure definition, separated by commas. If some of the members of the structure are not initialized, then the c compiler automatically assigns a value 'zero' to them.

d) Accessing of Structure Members

As seen earlier, the structure can be individually identified using the period operator (.). After identification, we can access them by means of assigning some values to them as well as obtaining the stored values in structure members. The following program illustrates the accessing of the structure members.

Example: Write a C program, using structure definition to accept the time and display it.

```
/ * Program to accept time and display it */
# include <stdio.h>
void main( )
{
struct
{
int hour, min;
float seconds;
} time;
printf ("Enter time in Hours, min and Seconds\n");
scanf ( "%d %d %f", &time . hour, & time . min, & time . seconds);
printf ( " The accepted time is %d %d %f " , time . hour, time . min, time . seconds);
}
```

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Total No. of Questions – 18

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ACCOUNTANCY AND TALLY
Paper I
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. What is Accounting?

A) Accountancy: "Accounting is the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information".

2. Define double entry system of Accounts.

A) The fundamental rule under Double Entry system of Accounting is that, " for every debit there must be corresponding value of credit".

"Every business transaction has two – fold effect and it affects two accounts in opposite directions and if a complete record were to be made of each such transaction, it would be necessary to debit one account and credit another account".

3. Define Journal.

A) **Journal:** Journal is called as book of Primary Entry or Book of Original Entry. Because, All business transactions are first entered in this book in chronological order. A journal is a book in which all the day to day accounting transactions were written in accounting terms in chronological order.

4. What is Ledger?

A) Ledger: Ledger is a main book which contains all the accounts in which the transactions recorded in the books of original entry are transferred. Ledger is also called the "***Book of Secondary Entry***", because the transactions are finally incorporated in the ledger.

5. Define Invoice.

A) Invoice: Invoice is a document received by the trader from the supplier along with the goods by stating that, the goods are supplied as per the order along with the price, discount offered, and other terms and conditions. This document is called as "Inward Invoice".

6. What is Cash Book? Write different types of Cash Books.

A) **Cash book**: Cash book is a very popular subsidiary book maintained by all business organizations irrespective of their nature, as big or small. All the cash transactions of a business are primarily recorded in cash book.

There are different kinds of cash books maintained by the business organisation depending on the size of business. Those are

1. Simple Cash Book (or) Single Column Cash Book
2. Double Column Cash Book
3. Triple Column Cash Book
4. Petty Cash Book

7. Define Passbook.

A) Pass Book: Bank maintains an account for each customer in its book. All the deposits done by the customer are recorded on the credit side of customer account and all the withdrawals done by the customer are recorded on the debit side of the customer account. A copy of this account is regularly sent to the customer by the bank. This copy is called "***Pass Book***".

8. Define Trial Balance.

A) Trial Balance:

- According to **J.R.Batliboi** Trial balance is a statement, prepared with the debit and credit balances of ledger to test the arithmetical accuracy of the books.
- According to **Carter** "Trial balance is the list of debit and credit balances, taken out from ledger . It also includes the balances of cash and bank taken from cash book".
- According to **Spicer and Peglar,** " A trial balance is a list of all the balances standing on the ledger accounts and cash book of a concern at any given date.

9. Define Profit and Loss Account.

A) Profit and Loss Account: Profit and Loss Account is a nominal account, so all the expenses and losses should be debited and all the incomes and gains to be credited to Profit & Loss account. The balance of Profit & Loss Account is either net profit or net loss and the same is to be added to / deducted from Capital Account in Balance Sheet.

10. What are the function keys used in Tally?

A)

Function Key	Purpose
F1	Select a Company
F1 (Alt+F1)	Shut Company, Detailed display of Profit & Loss Account or Balance sheet etc. while in those screens.
F2	Date
F2(Alt+F2)	To change accounting period
F3	Company information
F3 (Alt+F3)	To change company basic data or information.
F4	Contra Entry
F5	Payment
F6	Receipt
F7	Journal
F8	Sales
F8 (Alt+F8)	Credit Note
F9	Purchase
F9 (Alt+F9)	Debit Note
F 10	Reverse Journal
F10 (Alt+F10)	Memos

F11	Features
F12	Configuration

Note: Function key with underline is denoted for using the function key with the combination of " Alt " key in the keyboard.

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. Explain the different Accounting concepts in detail.

A) Accounting is the language of business. To make the language convey the same meaning to all people, as far as practicable, and to make it full of meaning, accountants have agreed on a number of concepts which they try to follow. These are given below:

1. Business Entity Concept
2. Money Measurement Concept
3. Cost Concept
4. Going Concern Concept
5. Dual – Aspect Concept
6. Realisation concept
7. Accural Concept
8. Matching Concept
9. Accounting Period Concept

1. **Business Entity Concept:** Accountants treat business as separate from the owner; then it becomes possible to record transactions of the business with the owner also. Without such differentiation, the affairs of the firm will all be mixed up with the private affairs of the owner and the true picture of the business will not be available.
2. **Money Measurement Concept:** Accounting records only those transactions which are expressed in terms of money, though inventory rerecords are also kept in some cases. It should be remembered that money allows various things of different nature to be added up together and dealt with. The use of a building and the use of clerical services can be added up only through money values and not otherwise.
3. **Cost Concept:** Transactions are entered in the books of account at the amounts actually involved. It prevents random values being put on transactions. This concept is used mainly in acquisition of assets. In other words, the amount to be recorded is objectively arrived at as a result of the mutual agreement of two parties involved.
4. **Going Concern Concept:** It is assumed that the business will exist for a long time and transactions are recorded from this point of view. This concept requires difference between expenditure as long term benefitting expenditure (Ex: pre paid insurance) and short term benefitting expenditure (Ex: Salaries).
5. **Dual – Aspect Concept:** Dual Aspect Concept is the core of the double-entry bookkeeping. It provides the very basis of recording business transactions in the books of accounts. Dual Aspect Concept assumes that every transaction has two-sided effects, i.e. it affects two accounts in their respective opposite sides. Therefore, the transaction should be recorded at two places. It means, both the aspects of the transaction must be recorded in the books of accounts.

The concept of duality is commonly expressed in terms of fundamental accounting equation:

Assets = Liabilities + Capital

The above accounting equation states that the assets of a business are always equal to the claims of owner/owners and the outsiders this claim is also termed as **capital or owner's equity** and that of outsiders, as **liabilities or creditors' equity**. According to this concept for every debit, there is a correspondence credit and vice versa. Every transaction has two aspects. These two aspects may be:

1. An increase in asset and decrease in other assets
2. An increase in asset and simultaneously increase in liability
3. A decrease in asset and increase in another asset
4. A decrease in asset and decrease in liability

6. **Realisation concept:** Revenue should be accounted for only when it is actually realized or it has become certain that the revenue will be realized. This signifies that revenue should be recognized only when the services are rendered or the sale is affected. However, in order to recognize revenue, actual receipt of cash is not necessary, but the organization should be legally entitled to receive the amount for the services rendered or the sale affected.
7. **Accrual Concept:** The accrual concept in accounting means that expenses and revenues are recorded in the period they occur, whether or not cash is involved. The benefit of the accrual approach is that financial statements reflect all the expenses associated with the reported revenues for an accounting period.
8. **Matching Concept:** The matching concept is an accounting practice whereby firms recognize revenues and their related expenses in the same accounting period. Firms report revenues, that is, along with the expenses that brought them. The purpose of the matching concept is to avoid misstating earnings for a period.
9. **Accounting Period Concept:** An accounting period is the span of time covered by a set of financial statements. This period defines the time range over which business transactions are accumulated into financial statements, and is needed by investors so that they can compare the results of consecutive time periods.

12. Explain double entry system and write its advantages.

A) **Advantages of Double Entry System**Double entry system is acknowledged as the best method of accounting in the modern world. Following are the main **advantages of double entry system**:

1. **Complete Record of Transactions:** Under this method both the aspects of each and every transaction are recorded. So it is possible to keep complete account.
2. **Scientific System:** This is the only scientific system of recording business transactions. It helps to attain the objectives of accounting.
3. **Accuracy of Accounts:** It is possible to verify the arithmetical accuracy of the books of accounts by ascertaining whether the two sides (Dr. and Cr.) become equal or not through a process known as trial balance.
4. **Ascertainment of Profit or Loss:** Under this system profit and loss account can be prepared easily by taking together all the accounts relating to income or revenue and expenses or losses and thereby the result of the business can be ascertained.
5. **Ascertainment of the Financial Position:** A Balance Sheet can be prepared by taking together all the accounts relating to assets and liabilities and thereby the financial position of the business can be assessed.

6. **Prevents Errors and Frauds:** Under this system mistakes and defects can be detected by internal check, so that accurate information regarding business can be ascertained.
7. **Full Details of Control:** This system permits accounts to be kept in a very detailed form, and thereby provides sufficient information for the purpose of control.
8. **Helps in decision making:** Under this system necessary statistics are easily available so that the management can take appropriate decision and run the business efficiently.
9. **Comparative Study:** Profit and Loss accounts and Balance Sheets of different years as well as of different firms can be compared and the success or failure of the business can be measured.

13. Explain different types of subsidiary books in detail.

A) Different types of Subsidiary Books

There are 8 types of subsidiary books used for different purposes. Those are:

1. Purchase Book
2. Purchase Returns Book
3. Sales Book
4. Sales Returns Book
5. Cash Book
6. Bills Receivable Book
7. Bills Payable Book
8. Journal Proper

Purchase Book

Goods purchased on credit are recorded in this book. The cash purchases of goods and Purchase of Assets (Furniture, Machinery etc.) are not recorded. The invoice or bills received from the supplier by the firm are the source documents for recording entries in this book.

Purchase Book

Date	Particulars	Inward Invoice No.	L. F. No	Amount Rs.

Purchase Returns Book

The goods returned to the supplier purchased on credit are recorded in this book. As the goods are going out from the firm, this book is also called as '***Returns Outward Book***". For every return a Debit Note is prepared and is sent to the supplier. Each debit note is serially numbered and dated.

Purchases Returns Book

Date	Particulars	Debit Note No.	L. F. No	Amount Rs.

Sales Book

The goods sold on credit are recorded in this book. The cash sales of goods and Sale of Assets (Furniture, Machinery etc.) are not recorded. The Outward invoice or bills prepared by the trader are the source documents for recording entries in this book. Sales book also called as '***Sales Day book or Sales Journal***'.

Sales Book

Date	Particulars	outward	L. F.	Amount

		Invoice No.	**No**	**Rs.**

Sales Returns Book

The goods returned by the customers sold for credit are recorded in this book. As the goods are coming into the firm, this book is also called as "***Returns Inward Book***". On receipt of goods from the customer, credit note is prepared and serially numbered and dated.

Sales Returns Book

Date	**Particulars**	**Credit Note No.**	**L.F. No**	**Amount Rs.**

Cash Book

In this book, all the transactions relating to cash receipts and cash payments are recorded. It starts with the cash or bank balance at the beginning of the period. It gives the closing balance at the end of the period. It is the only subsidiary book which acts as both Journal and Ledger.

Bills Receivable Book

A trader draws bills on the debtors for the amount due from them, such bills drawn by the traders and duly accepted by the debtors are called '***Bills receivable'***. The amount on bills to be received is entered in bill receivable book. This book contains the details of the bill date, acceptor's name, amount, term, place of payment etc.

Bills Receivable Book

No. Of Bill	Date Received	Date of bill	From whom received	Drawer	Acceptor	Where payable	Term	Due date	Ledger Folio	Amount	Cash book folio	Remarks

Bills Payable Book

Every business organisation accepts the bills to the creditors, like wholesalers or manufacturers for the purchase of goods on credit. Such bills drawn by creditors and accepted by traders are called bills payable and they are recorded in a separate book called ***'Bills Payable Book'***.

Bills Payable Book

No. of bill	Date of bill	To whom given	Drawer	Payee	Where payable	Term	Due date	Ledger Folio	Amount paid	Date of Payment	Cash Book Folio	Remarks

Journal Proper

This book is maintained to record transactions, which do not find place in other seven Subsidiary Books. The Journal Proper also known as '***Journal Residual*** '. The format of Journal Proper is similar to the ordinary journal.

Treatment of Trade Discount

Trade Discount: The rebate offered by the supplier on the catalogue price is known as trade discount. After deducting the trade discount from the purchase price, the only net amount is to be recorded in the books, if the discount is given by the trader.

14. Explain different types of Cash Books in detail.

A) There are different kinds of cash books maintained by the business organisation depending on the size of business. Those are

1. Simple Cash Book (or) Single Column Cash Book
2. Double Column Cash Book
3. Triple Column Cash Book
4. Petty Cash Book

1. Simple Cash Book (or) Single Column Cash Book

Simple Cash Book (or) Single column cash book records all cash transactions of the business in a chronological order. Cash receipts are to be debited and cash payments are to be credited. We can ascertain the balance like other accounts, after entering all the transactions. The format of single column cash book is as follows.

Dr. Simple Cash Book (or) Single Column Cash Book Cr.

Date	Particulars	L.F.	Amount Rs.	Date	Particulars	L.F.	Amount Rs.

2. **Double column Cash Book (or) Two Column Cash Book:**

This cash book is an extension of Single Column Cash Book. In double column cash book, an additional column is provided for the discount. On the debit sided discount allowed column and on the credit side discount received column is provided along with cash column. There are two columns for amount on each side of the cash book. One is for cash or bank and the other is for Discount. This cash book also called as Two Column Cash Book.

The Double column Cash Book is again classified into Two types those are

1. Cash book with Cash and Discount Columns
2. Cash book with Bank and Discount Columns

Dr Cash and Discount column cash book Cr

Date	Particulars	L.F. No	Discount Allowed	Amount Rs.	Date	Particulars	L.F. No	Discount Received	Amount Rs.

Dr Bank and Discount column cash book Cr

Date	Particulars	L.F. No	Discount Allowed	Bank Rs.	Date	Particulars	L.F. No	Discount Received	Bank Rs.

3. **Three Column Cash Book:** In addition to the Date, Particulars, L.F. No., Discount and Amount columns in the double column cash book, the triple column cash book contains bank column. It contains three columns for amount on both debit and credit sides. This book also called or known as Cash book with Cash, Bank and Discount columns.
   - It records both cash and bank transactions.
   - It records the transactions which affects both cash and bank at a time with the help of contra entry.

The proforma of Three column cash book is as follows.

Dr. **Three column cash book**
Cr.

Date	Particulars	L.F. No	Discount Allowed	Amount Rs.	Bank Rs.	Date	Particulars	L.F. No	Discount Received	Amount Rs.	Bank Rs.

4. Analytical Petty Cash Book: Due to a large number of Petty expenses or petty payments such as cartage, travelling, postage, refreshments, stationery and other expenses, it is difficult to record all such payments in regular books of accounts. To record all such payments of repetitive nature, a separate cash book is prepared which is called petty cash book.

15. Explain the importance of Bank Reconciliation statement.

A) **Bank Reconciliation Statement:** The statement prepared to reconcile the balances of cash book and pass book is called ***"Bank Reconciliation statement"***. i.e. The Bank Reconciliation statement is a statement prepared to reconcile the difference between the balances as per the bank column of the cashbook and passbook at any given date.

Significance:

- To locate the mistakes or errors on either side.
- To Enable the business concern to get up – to – date record of transactions from the bank.
- To Ensure proper evidence of payment
- To Enable the business to identify the cheques deposited at bank by the business but not collected in time.
- To prevent the frauds and misappropriations

16. Prepare the Trial Balances from the following balances of different Leger Accounts:

	Rs.
Cash A/c	**53,500**
Capital A/c	**60,000**
Purchases A/c	**6,000**
Prasad A/c	**2,000**
Sales A/c	**2,000**
Salaries A/c	**1,000**
Commission A/c	**1,000**
Sunitha A/c	**500**

Trial Balance

S.L.No	Nature of Accounts	L.F.	Balances Dr. Rs.	Balances Cr. Rs.
1.	Cash A/c		53,500	
2.	Capital A/c			60,000

3.	Purchases A/c		6,000	
4.	Prasad A/c		2,000	
5.	Sales A/c			2,000
6.	Salaries A/c		1,000	
7.	Commission A/c			1,000
8.	Sunitha A/c		500	
	Total		63,000	63,000

17. Write the procedure to prepare Final Account.

A) After having checked the accuracy of the books of accounts through preparation of Trial Balance, businessman wants to ascertain the profit earned or loss suffered during the year and also the financial position of his business at the end of the year. For this purpose he prepares 'Final Accounts' which are also termed as 'Financial Statement'. These include the following:

1) Trading Account
2) Profit and Loss Account
3) Balance Sheet

Trading Account: An account is to be prepared to know the results of trading activities carried during the accounting period is termed as ***"Trading account"***. Trading account is a nominal account. The trading expenses should be debited and the trading incomes should be credited to this account. The outcome of the trading account is either gross profit or gross loss. The trading account is to be prepared to find out the difference between actual cost of goods sold and sale proceeds.

Cost of goods sold = Purchase price of the goods + Expenses incurred on purchases.

Cost of Goods Sold = Opening Stock + Net Purchases (Cash + Credit – Returns) +Direct Expenses – Closing Stock of Goods

Gross Profit / Loss = Net Sales – Cost of Goods Sold

Profit and Loss Account: **Profit and Loss Account** is a nominal account, so all the expenses and losses should be debited and all the incomes and gains to be credited to Profit & Loss account. The balance of Profit & Loss Account is either net profit or net loss and the same is to be added to / deducted from Capital Account in Balance Sheet.

Balance sheet: Balance Sheet may be defined as "an orderly statement representing assets, properties, capital and liabilities of the business on a particular date".

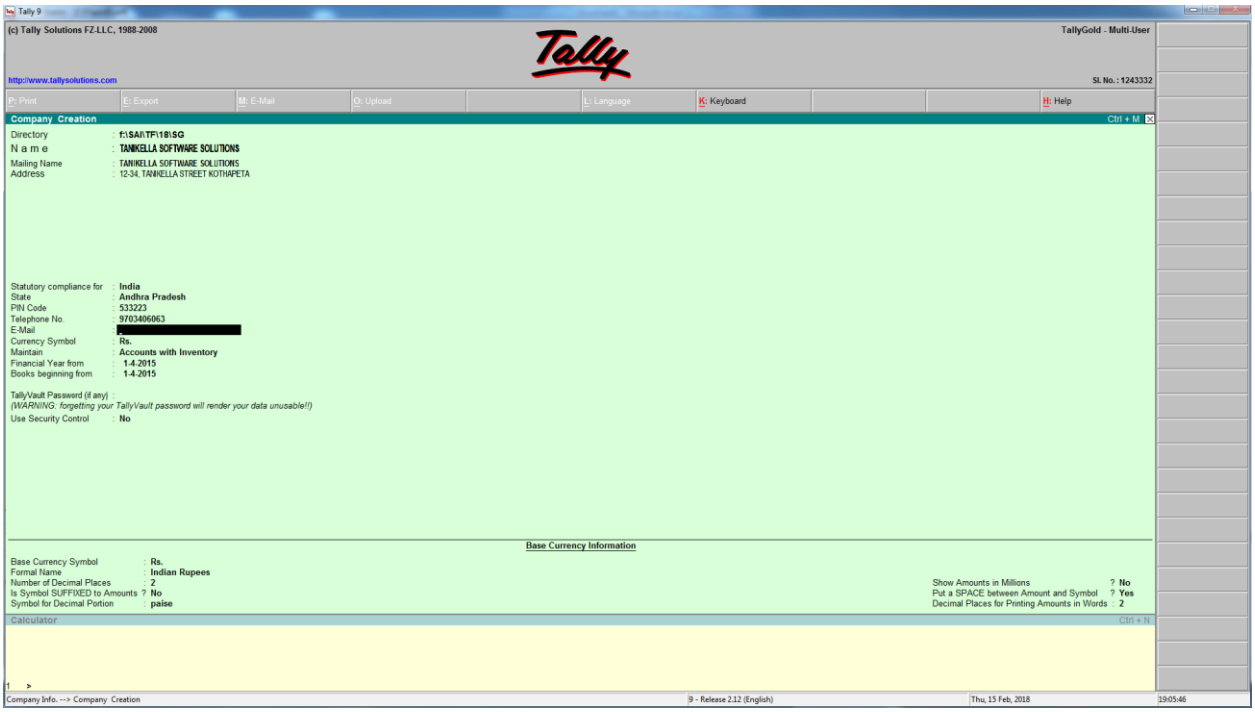
It is the statement prepared to find out financial position i.e., assets and liabilities of business on a given date. The balance sheet explains that what a business owns (assets) and what the business owes to others (liabilities) on a given date.

The balance sheet is prepared on the basis of trial balance. Only real and personal accounts are taken into consideration in the preparation of balance sheet.

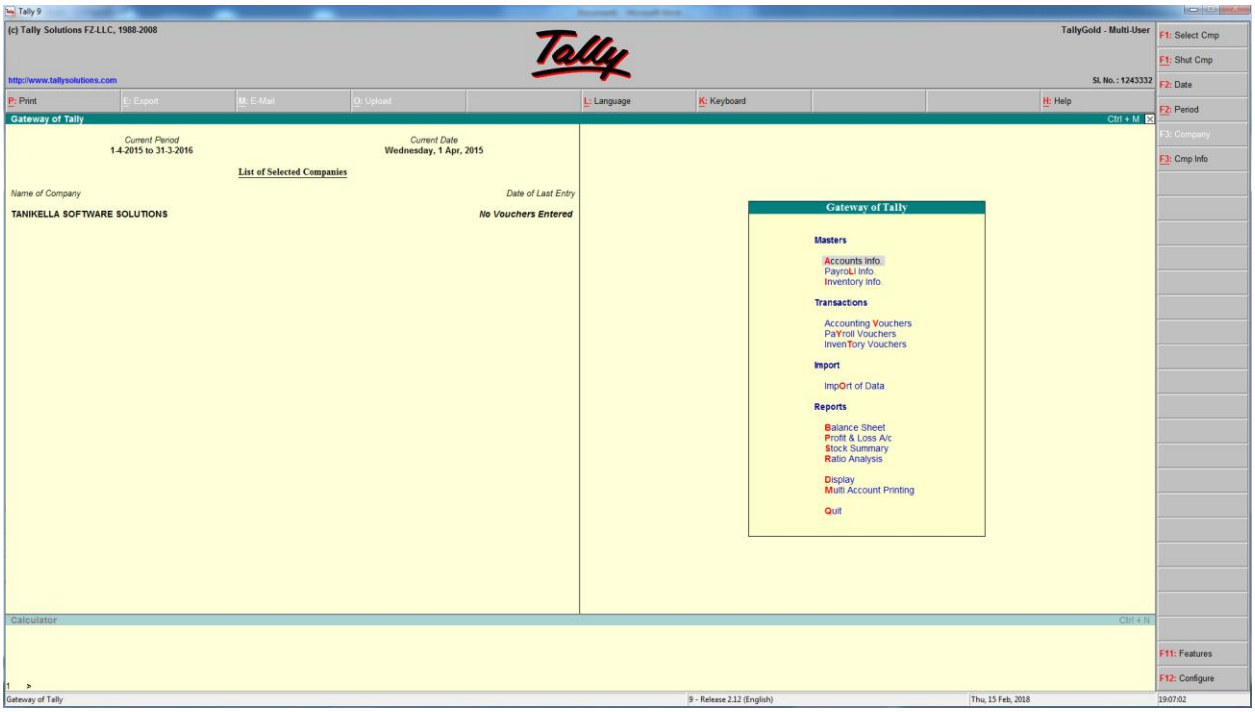
18. Write the procedure to create company in Tally.

A) The new company can be created using the following steps.

Step 1 : Start '! programs '!tally 7.2/ tally 9.0
or
Step 2: double click on tally icon on desktop
Step 3 : Select the option create company from company information screen
Step 4 : the company creation window gets opened and user can enter all the details of company like Name of company , Mailing name , Company address , Email address of company VAT Regd no if any , using of currency symbols as Rs. the financial year of company.



Then click on yes button to accept the details, and company gets created .



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OOPS AND JAVA
Paper II
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. Define OOP?

A) OOP stands for Object Oriented Programming. It is a programming concept based on "objects", which can contain data, in the form of fields and code, in the form of procedures.

2. Define variable.

A) VARIABLE: These are the names of the objects whose values can be changed during the program execution.

3. Write about if statement.

A) **if** statement: if statement is used to control the flow of execution of statements.

Syntax: **if (test expression)**
{
Statement _block;
}
statement x;

The statement _block may be a single statement or multiple statements. If the test expression is 'true', the statement block will be executed, otherwise the statement block will be terminated and the control flows to the statement immediately following the statement block.

4. Write about break statement.

A) break: If the break statement encountered in a loop, the loop immediately exited and the program continues with the statement immediately following the loop.

Syntax: break;

5. Define an array

A) Array: An array is defined as a set of homogeneous (same datatype) data items which are stored in consecutive memory locations under a common variable name.

Data_type arrayname = new arrayname[size];

6. What is constructor

A) CONSTRUCTOR: A constructor initializes an object when it is created. It has the same name as its class and is syntactically similar to a method. However, constructors have no explicit return type.

7. Define package.

A) Package: Packages are a way of grouping a variety of classes and or interfaces together. The grouping is done according to their functionality. Packages are act like containers for classes.

Syntax:

1. To create a package:
   package package_name;
2. To import a package:
   import package_name.*;

8. What is debugging.

A) Debugging: The process of identifying and removing user committed errors from a program is called debugging.

9. What is multitasking?

A) Multitasking: It is an operating system concept in which multiple tasks are performed simultaneously.

10. What is applet?

A) Applet: An applet is a Java program that runs in a Web browser. An applet can be a fully functional Java application because it has the entire Java API.

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. Explain the features of Java.

A) Features of Java:

1.Object Oriented: In java everything is an Object. Java can be easily extended since it is based on the Object Model.

2.Platform Independent: Platform means an operating system such as windows, unix, linux, etc., If a java program is compiled, it is compiled into platform independent byte code. This byte code can run on any platform. Hence we can say that the java is platform independent.

3. Simple: Java is designed to be easy to learn. If we understand the basic concept of OOP java would be easy to master.

4,Secure: With java's secure feature it enables to develop virus – free, tamper – free systems. Authentication techniques are based on public – key encryption.

5.Architetural – Neutral: Java compiler generates an architecture – neutral object file format which makes the compiled code to be executable on many processors with the presence Java runtime system.

6. Portable: We may carry the java byte code to any platform.

7. Robust: Java makes an effort to eliminate error prone situations by emphasizing mainly on compile time error checking and runtime checking.

8. Multi – threaded: With java's multi-threaded feature it is possible to write programs that can do many tasks simultaneously. This design feature allows developers to construct smoothly running interactive applications.

9. Interpreted: Java byte code is translated on the fly to native machine instructions and is not stored anywhere. The development process is more rapid and analytical since the linking is an incremental and light weight process.

10. High Performance: With the use of Just – In – Time compilers Java enables high performance.

11. Distributed: Java is designed for the distributed environment of the internet.

12. Dynamic: Java programs can carry extensive amount of run-time information that can be used to verify and resolve accesses to objects on run – time.

12. Explain logical operators in Java.

A) **Logical Operators:** The logical operators are &&(and) , ||(or) and !(not).

&& (and) : If both operands are true then the logical &&(and) is true.

a	b	a && b
0	0	0
0	1	0
1	0	0
1	1	1

|| (or) : If either operand is true then the logical ||(or) is true.

a	b	a || b
0	0	0
0	1	1
1	0	1
1	1	1

! (not) : It negates the operand.

a	!a
0	1
1	0

Ex: a, b and c are integer variables and assigned 3, 5 and 10 respectively.

Operator	Purpose	Expression	Result
&&	And	(a>b) && (c>a)	False
||	Or	(a>b) || (c>a)	True
!	Not	!(a>8)	True

13. Explain conditional statements in Java.

A) conditional statements in java are:

a. if statement
b. if – else statement
c. nested – if statement
d. if – else ladder
e. switch statement

if statement: if statement is used to control the flow of execution of statements.

Syntax: **if (test expression) {**
Statement _block;
}
statement x;

The statement _block may be a single statement or multiple statements. If the test expression is 'true', the statement_block will be executed, otherwise the statement block will be skipped and the control flows to the immediately following the statement block.
Ex: if (a>b) big = a;

if …… else statement: The **if…..else** statement is an extension of the simple **if** statement. If the test expression is true the statements under if will be executed else statements under else will be executed.

Syntax: **if (test expression) {**
true block statements;
}
else {
false block statements;
}

Ex:
```
if (a>b)
        big = a;
else
        big = b;
```

c) nested – if statement: an if statement with in another if statement is called nested if statement.

Syntax: if (test expression)
```
{
    if (test expression)
     {
        if (test expression)
        {
                Statement_block:
        }
      }
}
```

14. Write a Java program to find the factorial of a given number.

A) //Program to find the factorial of a given number
```
import java.io.*;
import java.util.Scanner;
class Factoria{
public static void main(String args[]){
int i,f=1,n;
Scanner in=new Scanner(System.in);
System.out.print("Enter the number to find factorial: ");
n=in.nextInt();
i=1;
while(i<=n){
f=f*i;
i++;
```

```
}
System.out.println("Factorial of "+n+"is:"+f);
}}
```

Compilation: D:\javalab>javac Factoria.java
Execution:D:\javalab>java Factoria
Input: Enter the number to find factorial: 5
Output: Factorial of 5is:120
Input: Enter the number to find factorial: 10
Output: Factorial of 10is:3628800

15. Explain inheritance with example in Java.

A) Inheritance: Inheritance is the process by which objects of one class acquire the properties of objects of another class. Inheritance supports the concept of hierarchical classification. Inheritance provides the idea of reusability.

Through inheritance we can create new classes that are built upon existing Classes. When we inherit from an existing class, we can reuse methods and fields, and we add new methods and fields to adopt our new class to new situations.

Syntax:

```
class<subclass_name> extends <superclass_name>
{
        //methods and fields
}
```

The keyword **extends** indicates that we are making a new class that derived from an existing class. i.e., a class that is inherited is called superclass. The new class is called subclass.

Ex:
```
class Employee{
    int salary=60000;
}
class Programmer extends Employee{
    int bonus= 10000;
}
class InheritanceExample{
public static void main(String args[ ]){
Programmer p=new Programmer( );
System.out.println("Programmer salary is: " +p.salary);
System.out.println("Programmer bonus is: " +p.bonus);
}}
```

Output:
Programmer salary is: 60000
Programmer bonus is: 10000

16. Explain the types of packages.

A) Java API Packages: Java API provides a large number of classes grouped into different packages according to functionality like lang, util, io, awt, net Etc., Each package provides different functionality to our java program.

Package	Purpose
java.lang	It includes classes for primitive types, strings, math functions, threads and exceptions.
java.util	Language utility classes such as vectors, hash tables, random numbers, date etc.,

java.applet	Classes for creating and implementing applets.
java.awt	Includes classes for windows, buttons, list, menus and so on.
java.io	Input or output support classes.

Syntax: To import a package:

import package_name.*;

User – Defined Package: A package which is defined by a programmer which is not already existed in the Java API.

Steps involved in creating our own package are:

1) Declare the package at the beginning of a file using the form
   package <package_name>;
2) Define the class that is to be put in the package and declare it **"public'.**
3) Create a subdirectory under the directory where the main source files are stored.
4) Store the listing as the classname.java file in the subdirectory created.
5) Compile the file. This creates " **.class** " file in the subdirectory.

Note: The subdirectory name must match the package name exactly.

Ex:

```
package package2;
public class ClassX
{
  public void displayX( )
  {
    System.out.println("Class X");
  }
}
```

17. Explain the types of errors in Java.

A) Compile Time errors: A compile-time error happens when the program is being compiled. Generally, Compile-time errors are syntax errors, and they are caught by the compiler.

Run time errors: Run-time errors occur at run-time. Generally, the program compiles but does not run correctly. Example, insufficient memory to store something or inability of the microprocessor to execute some statement comes under run-time error.

Logical Errors: The programmer might be using a wrong formula or the design of the program itself is wrong. Logical errors are not detected either by Java compiler or JVM. The programmer solely responsible for them.

18. What are the differences between multitasking and multithreading?

A)

Multi threading	Multi tasking
1. It is a programming concept in which a program or a process is divided into two or more sub programs or threads that are executed at the same time in parallel.	1. It is an operating system concept in which multiple tasks are performed simultaneously.
2. It supports execution of multiple parts of a single program simultaneously.	2. It supports execution of multiple programs simultaneously.
3. The processor has to switch between different parts or threads of a program.	3. The processor has to switch between different programs are processes.

4. It is highly efficient.	4. It is less efficient in comparison to multithreading.
5. A thread is the smallest unit in multithreading.	5. A program or process is the smallest unit in a multitasking environment.
6. It helps in developing efficient programs.	6. It helps in developing efficient operating systems.
7. It is cost – effective in case of context switching.	7. It is expensive in case of context switching.

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Total No. of Questions – 18

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RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)
Paper II
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. What is Data Processing?
A) **Data Processing:** Data processing is the collection and manipulation of items of data to produce meaningful information.

2. Define Schema.
A) **Schema:** The schema is the physical arrangement of the data as it appears in the DBMS.

3. What is Entity?
A) **Entity:** An entity is an object that exists in the real world and is distinguishable from other objects.

4. What is degree of a table?
A) **Degree:** It is a number of columns (attributes) in a table.

5. What is Tuple?
A) **Tuple:** Tuple is a row or record of a table .

6. What is Domain?
A) **Domain:** Domain is a pool of values of a specific attribute. Separate domains for separate attributes.

7. What are the Data types in SQL?
A) **Data types in SQL:** varchar, varchar2, number, long, date ,etc

8. What are the DDL commands?
A) **DDL commands:** create, alter and drop.

9. What is System analysis?
A) **System analysis** System analysis is, process of gathering and interpreting facts, diagnosing problems and using the information to recommend in the improvement of the system.

10. What is Data dictionary?
A) **Data Dictionary:** Data Dictionary is a file that contains descriptions of all data objects consumed or produced by the software.

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

11. Explain about data models.

A) Different data models are

1. Object based data models
2. Record – based data models
3. Physical data models

1. Object base data models: Object-based logical models are used in describing data at logical and view levels. They are characterized by the fact they provide flexible structuring capabilities and allow data constraints to be specified explicitly. There are many different data models, some of them are

I. The Entity-relationship model.
II. The Object-oriented model.
III. The semantic data model.
IV. The Functional data model.

2. Record based data models: In Record based data models; the database is structured in fixed formats records of several types. Each record defines fixed number of fields (attributes) and each field is fixed length. These models are used to specify the overall logical structure of the database and are used in describing the database at conceptual level.

The three widely accepted record – based data models are:

a) Relational model
b) Network model
c) Hierarchical model

3. Physical data models: Physical data model are used to describe data at the lowest level. In contrast to logical data models, there are few number of physical data models which are in use. Very few physical data models have been proposed so far. Two of these well known models are the unifying model and the frame memory model.

OR

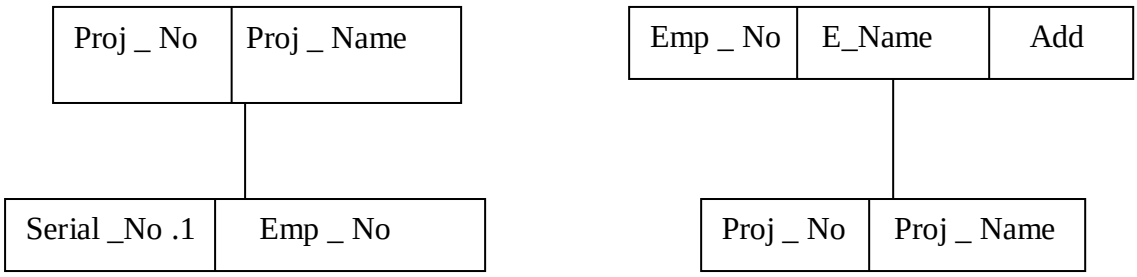
A) Data Model: A "Data Model" is a collection of concepts that can be used to describe the strcture of a database. Data model is a collection of conceptual tools to describe data, data relationships data cemantics and consistency constraints.

There are 3 types of data models.

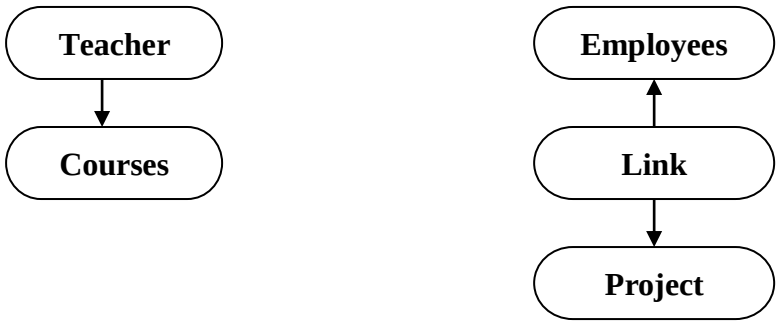
1. Hierarchical Data Model
2. Network Data Model
3. Relational Data Model.

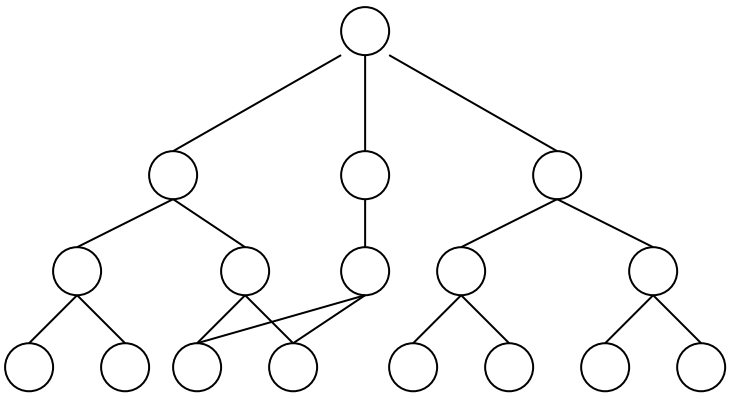
1. Hierarchical Data Model: This model is introduced in the information management system developed by the IBM in 1968. This relates records by the **Parent / Child** or **Supervisor / Sub-ordinate** relationship. This model like a hierarchical tree structure which is used to contract a hierarchy of records in the form of branches and nodes as the model its name.

Information which is closely related in a Parent – Child structure is stored together n the form of logical unit. Here a parent unit may have many child units. But a child unit can have only one parent unit. This model a permit to basic types of relationship namely **One – to – One** and **One – to – Many** relationships. The relation is Irreflexive , Anti symmetric and Transitive.



2. Network Data Model: It is quite similar to hierarchical data model. But it has slite improvement here we can have multiple parent – child relationships i.e. many – to – many relation ships can be represent when designing this the model one has to been establish relation between records at the time of creation of database. This model helps in rapid any easy access to data has we have multiple access paths to the reords.





3. Relational Data Model: Relational data has usually consists many relations, that are related in various ways. A Relational Data Base schema **S** is a set of relational schemas **S = { R_1, R_2, ..., R_m }** and a set of integrity constraints i.e. A relational data base state DB of **S** is a set of relation states **DB = { r_1, r_2, r_3, ... ,r_m}**
such that " r_i " is a state of " R_i " and such that the " r_i " relation states satisfy the integrity constraints specified in IC.

Relational model uses a collection of tables to represent both data and the relational ships among those data. Each table ;as multiple columns and each column as a unique name.

Ex:
Customer:

Customer Name	Social Security	Address	Account No
Prasad	192-84	Hyd	A – 101
Imran	019-28	Sec'bad	A – 215
Ravi	022-224	Charminar	A – 305
Prasad	190-84	Banglore	A – 201
Smith	009-282	Delhi	A - 405

Account:

Account No	Balance
A – 101	500
A – 215	800
A – 305	400
A – 201	900
A - 405	750

In the above two tables there is a relationship between customer name and customer account numbers

1. Prasad Account No -101 has 500 as Balance.
2. Prasad Account No – 201 has 900 as Balance.

12. What are the functions of DBA?

A) The functions or responsibilities of DBA includes
1. Schema Definition.
2. Storage Structure and access method definition.
3. Schema physical Organization and Modification.
4. Granting of authorization for data access .
5. Routine maintenance.

1. Schema Definition: The DBA creates the original database schema by executing a set of definition statements in the DDL.

2.Storage structure and access Method Definition: DBA will decide the actual storage structure and different access methodologies for the database.

3.Schema Physical Organization and Modification: The DBA carries out changes to the schema and physical organization to reflect the changing needs of the organization, are to alter the physical organization to improve performance.

4. Granting of Authorization for data access: By granting different types of authorization, the database administrator can regulate which of the database various users can access.

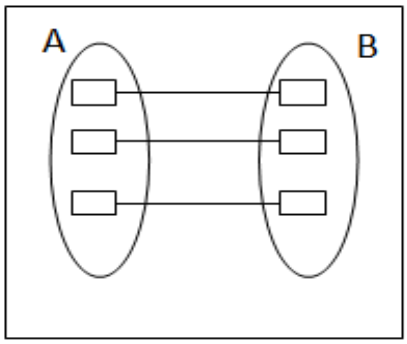
5. Routine Maintenance: DBA is the final authority to regulate the daily activities.

13. Explain Mapping Constraints with diagrams.

A) There are 4 types of mapping constraints.

1. ONE – to – ONE relationship
2. MANY – to – ONE relationship
3. ONE – to – MANY relationship
4. MANY – to – MANY relationship

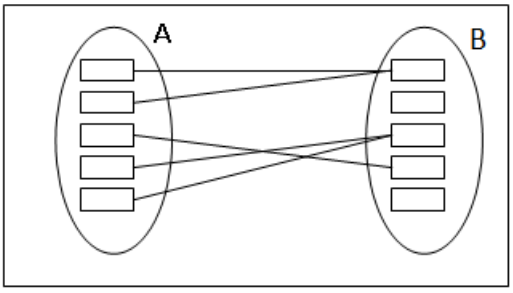
1. ONE – to – ONE relationship: An entity in A is associated with at most one entity in B , An entity in B is also associated with at most one entity in A.



ONE – to – ONE relationship

Example : Relationship between the entities principal and college. i.e., Principals can lead a single college and a principal can have only one college.

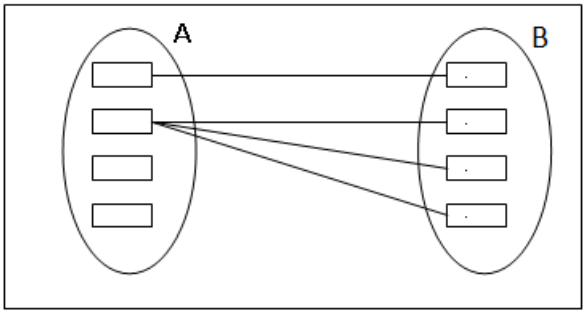
2. Many – to – One relationship: An entity set in A is associated with at most one entity in B, An entity in B however can be associated with any number of entities in A.



Many – to – One relationship

Example: Relationship between the entities Districts and state .i.e. many districts belong to a single state but many states cannot belong to single district.

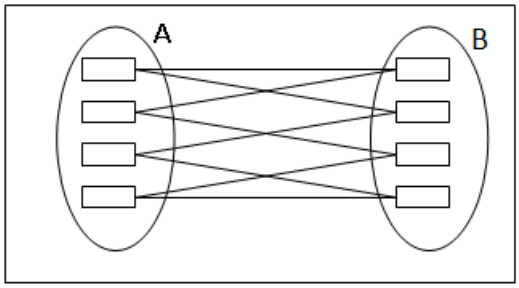
3. ONE – to - MANY relationship: An entity set A is associated with any number of entities in B. An entity in B, however can be associated with at most one entity in A.



ONE – to - MANY relationship

Example: Relationship between the entities class and student i.e., a class can have many students but a student cannot be in more than one class at a time**.**

4. MANY – to – MANY relationship: An entity set A is associated with any number of entities in B and an entity set in B is associated with any number of entities in A.



MANY – to – MANY relationship

Example: Relationship between the Entities College and course .i.e. a college can have many courses and course can be offered by many colleges.

14. What is Attribute? What are the types of attributes?

A) The attributes can be classified in to :

1. Simple attributes
2. Complex/ composite attributes
3. Single – valued attributes
4. Multi - valued attributes
5. Derived attribute
6. Null Attribute

1. Simple attributes: The attributes have been simple; that is, they **cannot** be subdivided into parts. Example : Age, Sex etc.

2. Composite attributes: The attributes, which **can be** sub divided in to sub parts.

Example : Student Name, Which can be divided in parts like First name, Middle name and Last name etc.,

3. Single – valued attributes: The attribute which contain/ accept only one value/character.

Example : Sex: Male or Female Marital status : Married or Unmarried

4. Multi valued attributes. The attributes which has set of values for a specific entity.

Example 1: Number of dependents in a family may 0,1,2,3,4…..

Example 2: A student may have several phone numbers, and different students may have different numbers of phones.

5. Derived attributes: The value of this type of attribute can be derived from the values of other related attributes or entities. The value of a derived attribute is not stored but is computed when required.

6. Null Attributes : An attribute takes a **null** value when an entity does not have a value for it. The null value may indicate "not applicable" – that is, that the value does not exist for the entity.

15. Write about types of keys.

A) The keys can be categorized in to

1. Super Key: A **Super key** is a set of one or more attributes that, taken collectively; allow us to identify uniquely an entity in the entity set. For example, the 'student_id' attribute of the entity set student is sufficient to distinguish one student entity from another. Thus, 'student_id' is a super key

2. Candidate Key: A super key with minimal values is called a candidate key. A super key that does not contain a subset of attributes, that is itself super key.

3. Primary key: The Primary key of a relational data base table is a column name which uniquely identifies each record in the table. It cannot contain NULL entries.

4. **Secondary key** : An attribute (or) Combination of attributes used strictly for data retrieval purposes.

5. **Foreign key** : An attribute or Combination of attributes in one table whose values must either match the primary key in another table or be NULL.

16. Write any six codd rules.

A) Edgar F. Codd, proposed thirteen rules (numbered zero to twelve) and said that if a Database Management System meets these rules, it can be called as a Relational Database Management System.

1) **0 – Single Foundation Rule**
2) **1 – Information Rule**
3) **2 – Guaranteed Access**
4) **3 – Systematic Treatment of NULL values.**
5) **4 – Active online catalogue**
6) **5 – Comprehensive data sublanguage.**
7) **6 – View updation Rule**
8) **7 – High level UPDATE, INSERT, DELETE**
9) **8 – Physical Data Independence**
10) **9 – Logical Data Independence**
11) **10 – Integrity Independence**
12) **11 - Distribution Independence**
13) **12 – Non – Subversion**

1) **Single Foundation Rule:** RDBMS must manage every aspect of the database entirely through using its relational capabilities without using any external language.

2) **Information Rule:** The information can be represented in one and only one way that is tables also known as relations. This rules emphasis fact that the information can be stored in rows and columns.

3) **Guaranteed Access:** The access to table follows the sequence of table name, tuple attribute. This also states that at the intersection or each column and row there should be one and only one value a data. The value of a data must be logically addressable by using combination of data name, column name and value. Every step of data access is identified where the access to the work area involve qualifying the user name and password.

4) **Systematic Treatment of NULL values:** One should be able to operate with NULL values. The operation with the NULL values should be performed using single command. The treatment of NULL should be independent of data type. NOT NULL value should be provided if gives of these NULL values are included there should force no problems for applications using and manipulating them.

5) **Active On – Line catalogue:** RDBMS should maintain data dictionary tables to keep tack of current state of the database. These are special tables which keep track of the current state of the database. These tables contains information about table techniques, views column definitions synonyms and every other type of objects updated automatically.

6) **Comprehensive Data Sub Languages:** RDBMS should have comprehensive Data Definition Language, Data Control Language, Data Manipulation Language. All the operation on database should be supported by the data language which is path and parcel of the package.

7) **View Updation Rule:** One can feel that any view can be updated, but in real practice one cannot update all views as some views are based on aggregating and virtual columns which make them impossible to be update.

8) **High Level UPDATE, INSERT, DELETE:** An RDBMS must be capable of doing more than just retrieving the relational data. It should able to do insert, Update and Delete data items with the use of single command for each operation. It should able to do this operation are more than one row also.

9) **Physical Data Independence:** The recording on the data should be left to the description of the type of system used that is whenever data is retrieved it should be independent of the storage structure and representation a change in the storage strategy should no effect the performance of data.

10) **Logical Data Independence:** The data should be independent of logic involved in programming if at all the database design is changed then the programs should be independent of these changes. That is once the programs are committed by effort should not effect by this effort should not be effect should logic depending level.

11) **Integrity Level Independence:** The data available should force no limitations interms of integration. The limits of the system used should only be taken into consideration. The integrity constraints specific to particular relational database must definable in relational data sub-language and storage in the data dictionary not in application programs.

12) **Distribution Independence:** This is one of the most popular and important aspect for any RDBMS. This implies fact the system should look like a centralized system to the

user even if it is distributed across. It is important as the user should face difficulties. While accessing data, if it is at remote server the RDBMS should not take care of it imposing no problems to the user.

13) **Non – Subversion Rule:** Incase if RDBMS users help of any low language it must not bypass any integrity rules or constraints of the relational language thus any operation must be governed by the relation rules.

17. Explain any three DML commands.

A) ***Data Manipulation Language (DML):*** DML is used to perform typical manipulations like retrieval insertion and deletion and modification of the data the commands are as follows

a) INSERT
b) DELETE
c) UPDATE
d) SELECT

INSERT: INSERT command is used to insert data values in to a database table.

Syntax: INSERT into table_name (coumn_name, column_name) values (expression) **;**

Example: SQL> INSERT into emp (emp_id, emp_name, emp_sal) values (E1001, 'sastry', 2000)**;**

DELETE: DELETE command is used to delete the data from the database table.

Syntax: DELETE from table_name WHERE <search condition> **;**

Example: SQL>DELETE from emp WHERE emp_sal < 5000;

UPDATE: "UPDATE" command is use to change or modify database table. We can perform UPDATE operation in two ways.

a) To update all the rows / records of a table.
b) To update a single or set of records of a table.

Syntax: UPDATE table_name SET column_name = expression, column_name = expression WHERE column_name = expression;

Example:
SQL> UPDATE emp SET sal = 3200 WHERE ename = 'smith';

SELECT: "SELECT" command is used to retrieve data from a database table. We can SELECT the data from a table for two purposes.

a) To select all rows / records of a table.
b) To select specific records of a table.

Syntax:
a) SELECT * from table_name;
b) SELECT column_name, column_name from table_name WHERE search_condition;

Example:

a) SQL> SELECT * from emp;
b) SQL> SELECT epic , emp_name from employee WHERE dept='production' **;**

18. Explain different states of Software Development Life Cycle (SDLC).

A) System Development Life Cycle :

The stages involved during System Development Life Cycle are ::

1. Recognition of need
2. Feasibility study
3. Analysis
4. Design
5. Implementation
6. Post implementation and maintenance

1. **Recognition of need**: This gives a clearer picture of what actually the existing system is. The preliminary investigation must define the scope of the project and the perceived problems, opportunities and directives that triggered the project.

2. **Feasibility Study**: The goal of feasibility study is to evaluate alternative system and to purpose the most feasible and desirable system for development. In the process of feasibility study, the cost and benefits are estimated with greater accuracy. If cost and benefit can be quantified, they are tangible ; if not , they are called intangible.

3. **System Analysis:** System analysis is an in-depth study of end user information needs that produces functional requirements that are used as the basis for the design of a new information system.

4. **System Design**: System design can be viewed as the design of user interface, data, process and system specification .

5. **System Implementation:** Implementation is the stage where theory is converted into practical. The implementation is a vital step in ensuring the success of new systems. Even a well designed system can fail if it is not properly implemented.

6. **Post Implementation and Maintenance**: Once a system is fully implemented and being operated by end user, the maintenance function begins. Systems maintenance is the monitoring, evaluating and modifying of operational information system to make desirable or necessary improvements.

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DATA COMMUNICATION AND COMPUTER NETWORKS
Paper II
(English Version)

Time: 3 Hours **Max. Marks : 50**

SECTION A **10 X 2 = 20**

Note: (i) Answer ALL questions.
(ii) Each question carries TWO marks.

1. Define Bandwidth.

A) **Bandwidth:** Bandwidth means the amount of data that can be transferred from one point to another in a given time period (usually a second). Bandwidth is usually expressed in bits per second (bps) or Bytes per second(Bps).

2. Expand LAN, WAN, VAN, MAN.

LAN : Local Area Network
WAN: Wide Area Network
MAN: Metropolitan Area Network

3. Define a Network.

A) **Network:** A computer network is a group of computer systems and other hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users.

4. What is Router.

A) **Routers:** A Router is a device that forwards data packets along networks. A router is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISP's network. Router reduces network traffic by using routing table.

5. Define Protocol.

A) **Protocol:** A **network protocol** defines rules and conventions for communication between network devices.

6. Expand OSI, TCP / IP, HTTP, ISDN.

A)
OSI	-	Open Systems Interconnection
TCP /IP	-	Transmission Control Protocol or Internet Protocol.
HTTP	-	Hyper Text Transfer Protocol
ISDN	-	Integrated Services Digital Network

7. Write any two disadvantages of Internet.

A) Disadvantages of Internet:

1. Personal Information: If you use the Internet, your personal information such as your name, address, etc. can be accessed by other people. If you use a credit card to shop online,

then your credit card information can also be 'stolen' which is same as giving a blank check to someone.

2. Pornography: This is a very serious issue concerning the Internet, especially when it comes to young children. There are thousands of pornographic sites on the Internet which are harmful to the young children .

3. Spamming: This refers to sending unsolicited e-mails in bulk, which serve no purpose and unnecessarily clog up the entire system. Such illegal activities are frustrating for all Internet users, and so instead of just ignoring it, we should make an effort to try and stop these activities so that using the Internet can become that much safer.

8. Define Virus.

A) **Virus:** A Virus is a piece of software that can infect other programs by modifying them; the modification includes a copy of the virus program, which can then go on to infect other programs.

9. What is trouble shooting?

A) Trouble shooting: Trouble shooting is a process in which certain measures and processes are collectively used to identify and fix problems which are encountered with in a NETWORK or any Hardware device. Trouble shooting can be both **manual** and **automatic.**

10. What is HDD?

A) HDD: Hard Disk Drive is a Secondary storage device which stores data **permanently.**

SECTION – B **5 X 6 = 30**

Note: (i) Answer ANY FIVE questions.
(ii) Each question carries SIX marks.

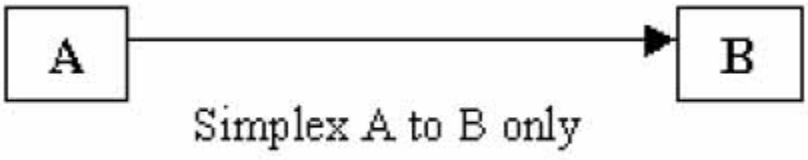
11. Write about transmission modes.

A) **Types of Transmission Modes**

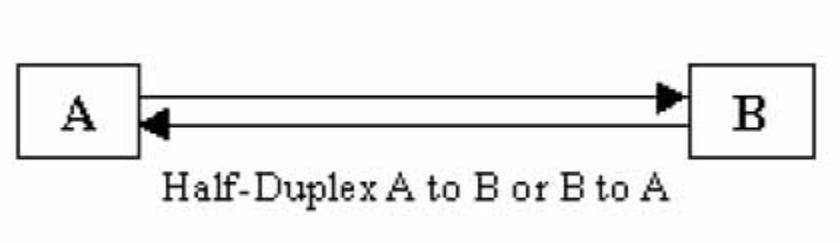
There are three ways for transmitting data from one point to another

1. Simplex
2. Half – Duplex
3. Full – Duplex

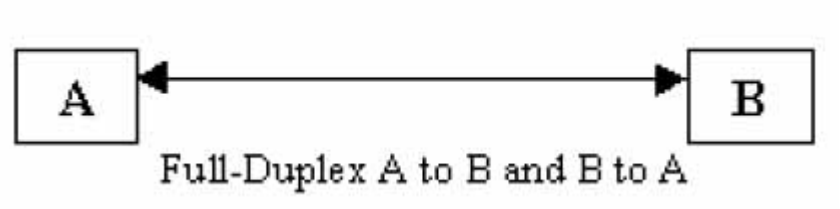
1. **Simplex:** In simplex mode the communication can take place only in one direction. The receiver receives the signal from the transmitting device. This mode of flow of information is Unidirectional. Example: Radio, T.V., Pager transmission.



2. **Half-duplex**: In half-duplex mode the communication channel is used in both directions, but only in one direction at a time. Thus a half-duplex line can alternately send and receive data. Example is the wireless communication.



3. **Full-duplex:** In full duplex the communication channel is used in both directions at the same time. Use of full-duplex line improves the efficiency as the line turn-around time required in half-duplex arrangement is eliminated. Example of this mode of transmission is the telephone line.



12. Explain different types of Computer Networks.

A) Different types of computer networks

Depending upon the geographical area covered by a network, it is classified as:

- Local Area Network (LAN)
- Metropolitan Area Network (MAN)
- Wide Area Network (WAN)
- Personal Area Network (PAN)

LAN(Local Area Network): A LAN is a network that is used for communicating among computer devices, usually within an office building or home.

- Is limited in size, typically spanning a few hundred meters, and no more than a mile
- Is fast, with speeds from 10 Mbps to 10 Gbps
- Requires little wiring, typically a single cable connecting to each device
- Has lower cost compared to MAN's or WAN's

MAN(Metropolitan Area Network):

- A MAN is a large computer network that usually spans a city or a large campus.
- A MAN is optimized for a larger geographical area than a LAN, ranging from several blocks of buildings to entire cities.
- A MAN might be owned and operated by a single organization, but it usually will be used by many individuals and organizations.
- A MAN often acts as a high speed network to allow sharing of regional resources.
- A MAN typically covers an area of between 5 and 50 km diameter.
- Examples of MAN: Telephone company network that provides a high speed DSL to customers and cable TV network.

WAN(Wide Area Network):

WAN covers a large geographic area such as country, continent or even whole of the world.

- A WAN is two or more LANs connected together. To cover great distances, WANs may transmit data over leased high-speed phone lines or wireless links such as

satellites.

- Multiple LANs can be connected together using devices such as bridges, routers, or gateways, which enable them to share data.
- The world's most popular WAN is the Internet.

PAN(Personal Area Network): A personal area network (PAN) is a computer network used for communication among computer devices, including telephones and personal digital assistants, in proximity to an individual's body

- A PAN is a network that is used for communicating among computers and computer devices (including telephones) in close proximity of around a few meters within a room.
- It can be used for communicating between the devices themselves, or for connecting to a larger network such as the internet.
- PAN's can be wired or wireless.
- The devices may or may not belong to the person in question. The reach of a PAN is typically a few meters.

Home Area Network (HAN): A **h**ome **a**rea **n**etwork (**HAN**) is a network contained within a user's home that connects a person's digital devices, from multiple computers and their peripheral devices to telephones, VCRs, televisions, video games, home security systems, smart appliances, fax machines and other digital devices that are wired into the network.

Metropolitan Area Network: It was introduced in 1980s. It is also known as MAN and uses the same technology as LAN. It is developed to extend its coverage over the entire city. It can be the connection of number of LANs into a larger network or simply it can be a single cable. It is mainly handled and operated by single private company.

Campus network: A campus network is a computer network made up of an interconnection of local area networks (LAN's) within a limited geographical area. The networking equipments (switches, routers) and transmission media (optical fiber, copper plant, Cat5 cabling etc.) are almost entirely owned (by the campus tenant / owner: an enterprise, university, government etc.).

Enterprise private network: An enterprise private network is a network build by an enterprise to interconnect various company sites, e.g., production sites, head offices, remote offices, shops, in order to share computer resources.

Backbone network: A Backbone network (BBN) is a part of a computer network communications that interconnects different pieces of network and providing a path for the exchange of information between different LANs or sub networks. A large corporation that has many locations may have a backbone network that ties all of the locations together.

Global area network (GAN): A global area network (GAN) is a network used for supporting mobile communications across an arbitrary number of wireless LANs, satellite coverage areas, etc. The key challenge in mobile communications is handing off the user communications from one local coverage area to another local coverage area.

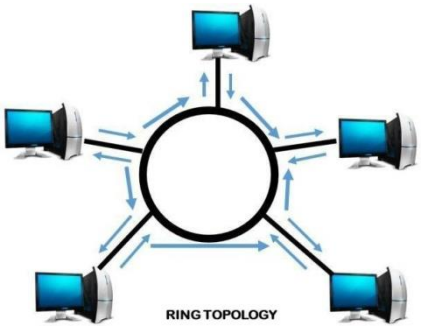
13. Explain about Network topologies.

A) Some common network topologies include ring, bus, star, tree and mesh configurations.

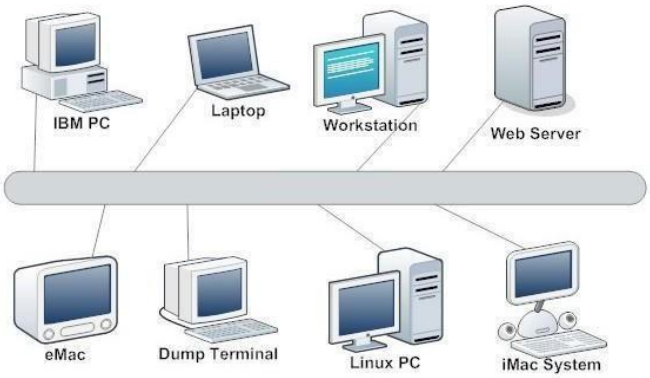
These topologies are defined below:

Ring Topology: In this topology,

- Devices are connected from one to another to form a ring shape.
- Each host is connected to the next and the last node is connected to the first.
- A data token[1] is used to grant permission for each computer to communicate.

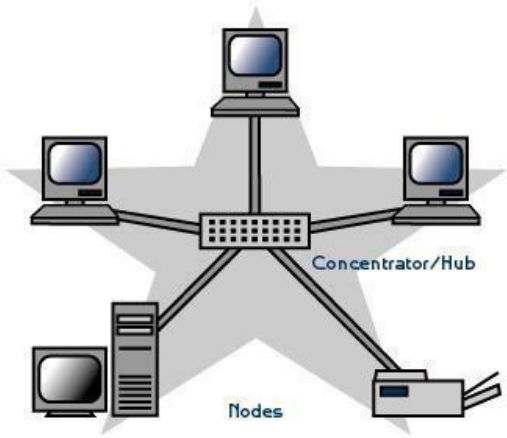


Bus Topology: In this topology, all hosts are connected to the backbone cable in a linear fashion



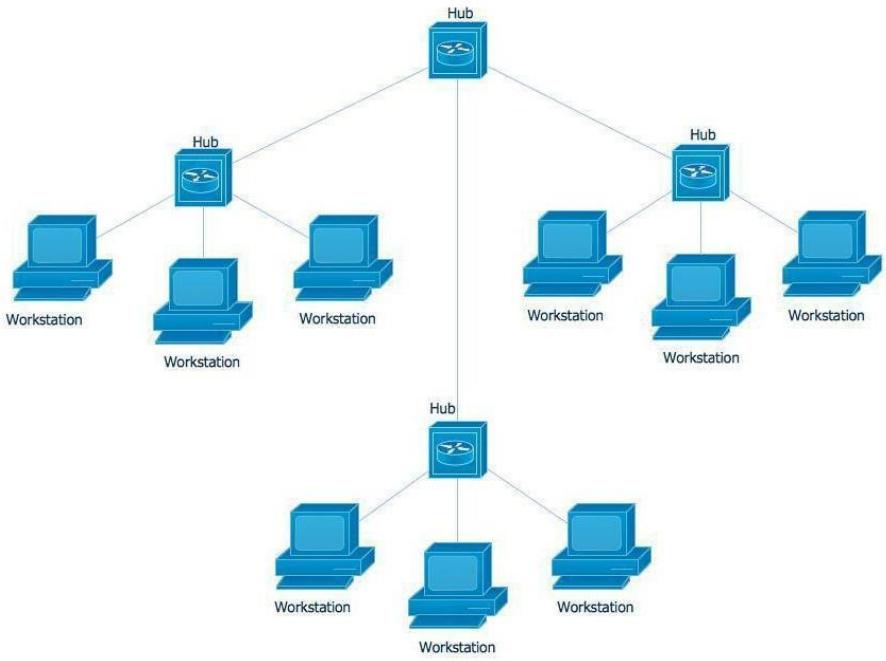
Star Topology: In this topology,

- All hosts are connected to a single point of concentration.
- Usually uses a hub[3] or switch[4] as a center node.
- Range limits are about 100 meters from the hub
- Data on a star network passes through the hub or concentrator before continuing to its destination.

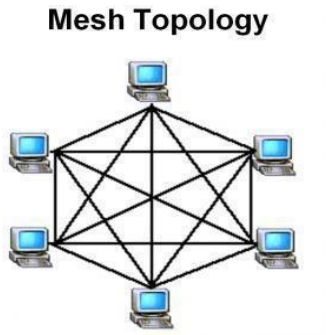


Tree Topology: One "root" node connects to other nodes, which in turn connect to other nodes, forming a tree structure. Information from the root node may have to pass through

other nodes to reach the end nodes.



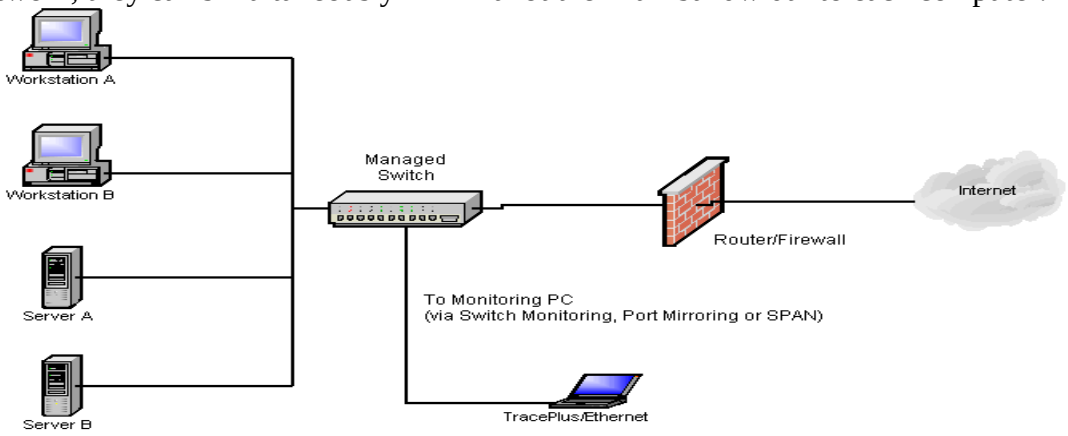
Mesh Topology: In this topology, Each host is connected to all the other hosts.



14. Discuss about Hubs and Switches.

A) **Hub:** A network hub acts as a centralized point for data transmission to computers in a LAN. When data from one computer reaches the hub it is broadcast to every computer in the network regardless of where the data is intended to go. Network bandwidth on LANs using a network hub is shared, which means that four computers on a hub will each get one-quarter the total bandwidth available on the hub.

Switches: An alternative to the network hub is the network switch. Switches represent a newer networking technology that assigns each computer in the network a specific MAC address. This allows LANs using a network switch to route information to individual computers. Because network switches do not broadcast to every computer on the network, they can simultaneously allot their full bandwidth to each computer.



15. Explain about TCP / IP Reference Model.

A) TCP/IP Reference Model: TCP/IP protocols map to a four-layer conceptual model known as the DARPA model, named after the U.S. government agency that initially developed TCP/IP. The four layers of the DARPA model are: Application, Transport, Internet, and Network Interface. Each layer in the DARPA model corresponds to one or more layers of the seven-layer Open Systems Interconnection (OSI) model.

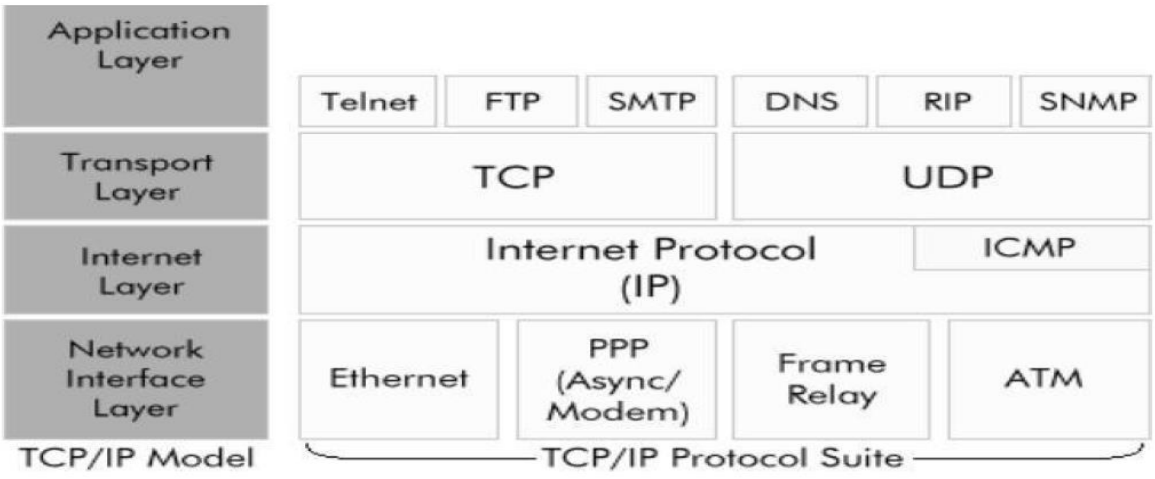


Fig 4.6 Logical view of TCP/IP Reference Model

1. The Host to Network Layer: Below the internet layer is great void. The TCP/IP reference model does not really say such about what happen here, except to point out that the host has connect to the network using some protocol so it can transmit IP packets over it. This protocol is not specified and varies from host to host and network to network.

2. Internet layer: It is a connectionless internetwork layer forming a base for a packet-switching network. Its job is to allow hosts to insert packets into any network and have them to deliver independently to the destination. They may appear in a different order than they were sent in each case it is job of higher layers to rearrange them in order to deliver them to proper destination.TCP/IP internet layer is very similar in functionality to the OSI network layer.

Packet routing is very essential task in order to avoid congestion. For these reason it is say that TCP/IP internet layer perform same function as that of OSI network layer.

The internet layer defines an official packet format and protocol called IP (Internet Protocol) and its provides

- Best-effort delivery
- No error checking
- Not racking
- IP is a host-to-host protoco**l.**

3. Transport layer: In the TCP/IP model, the layer above the internet layer is known as transport layer. It is developed to permit entities on the source and destination hosts to carry on a conversation. It specifies 2 end-to-end protocols

- **TCP (Transmission Control Protocol)**
- **UDP (User Datagram Protocol)**

TCP: It is a reliable connection-oriented protocol that permits a byte stream originating on one machine to be transported without error on any machine in the internet. It divides the incoming byte stream into discrete message and passes each one onto the internet layer. At the destination, the receiving TCP process collects the received message into the output stream. TCP deals with flow control to make sure a fast sender cannot swamp a slow receiver with more message than it can handle.

UDP: It is an unreliable, connectionless protocol for applications that do not want TCP's sequencing on flow control and wish to offer their own. It is also used for client-server type request-reply queries and applications in which prompt delivery is more important than accurate delivery such as transmitting speech or video.

4. Application Layer: In TCP/IP model, session or presentation layer are not present. Application layer is present on the top of the Transport layer. It includes all the higher-level protocols which are virtual terminal (TELNET), file transfer (FTP) and electronic mail (SMTP). The virtual terminal protocol permits a user on one machine to log into a distant machine and work there. The file transfer protocol offers a way to move data efficiently from one machine to another. Electronic mail was used for file transfer purpose but later a specialized protocol was developed for it.

16. Explain any three web browsers.

A) **Web Browsers:**

1. Internet Explorer: It was developed by Microsoft in 1994 and released in 1995 as a

supportive package to Microsoft Windows line of operating systems. According to statistics, its usage share from 1999 to 2003-04 was around 95%. Microsoft occasionally releases updates for the previous versions of IE, which have some enhanced capabilities. IE has come up a preview release of Internet Explorer 11.

Features: There are regular Microsoft updates that IE supports. Favicon allows an image to be used as a bookmark. It supports Integrated Windows Authentication. It's icon is as follows.

2. Mozilla Firefox: It is owned by Mozilla Corporation and was the result of an experimentation. 'Mozilla Firefox' was officially announced in February 2004. It was earlier named Phoenix, Firebird, and eventually Firefox. It is the second-most famous browser after Internet Explorer, as there were around 100 million downloads within a year of its release. Until November 2008, 700 million downloads were recorded.

Features: As it is an open source software, it allows everyone to access the code. It supports tabbed browsing that allows the user to open multiple sites in a single window. Session storage is also an important feature of Firefox, which allows the user to regain access to the open tabs after he has closed the browser window. It's icon is as follows.

3. Google Chrome: This web browser was developed by Google. Its beta and commercial versions were released in September 2008 for Microsoft Windows.

Features: The main standout feature is the malware and phishing warning that the browser suggests when the user wants to browse a site. Also, there is a user tracking option available with Chrome. It's icon is as follows.

17. How do you Send and Receive and E – mail with attachment?

A) **Sending an E-mail:**

To Send an e-mail , sender must have email-id(user name and password), receiver's email-id , message , subject of the mail and location of a file to be attached etc.,

1. You must open your email account provider such as gmail, yahoo or rediff etc.,
2. Login into your email-id by using user name and password.
3. After logged in , click on compose
4. Enter address of the receiver(s) in the "To" field
5. you must write the subject that means email is for what purpose in the "subject"field
6. you must write in the contents of your email in message box.
7. If you want to attach files , click on attach and give the location of a file to be attached.
8. Finally , click on "Send" to send.

If everything is correct , then you will be noticed that
"your message has been sent, view message"

Receiving an E-mail :

To receive an e-mail , receive must have email-id (user name and password),

1. You must open your email account provider such as gmail, yahoo or rediff etc.,
2. "Login" into your email-id by using user name and password.
3. After logged in, click on inbox to see all the Emails you have received.
4. After opening the Inbox you will see the person and the subject who have sent you the mail.
5. Clicking on it will open the mail and you can see the data which have been sent to you.
6. If an attachment is there, then you can view or download by clicking.
7. There will be a reply option in case if you want to reply to the sender.
8. you can save the message and attachments if you want.

18. Explain the various trouble shoots in printer

A) A **printer** is an external hardware output device that takes the electronic data stored on a computer or other device and generates a hard copy of it.

Trouble Shooting A Printer:

When a printer is unable to print, there may be a possibility that either the printer is experiencing a hardware or software problem. Before testing the software, it is always recommended that the printer is tested for hardware issues first.

Testing Hardware :

1. Check that paper is loaded and that there are no paper jams.
2. Check the cable connections. Both the power cable and data cables (e.g., USB cable) going from printer and to your computer.
3. Verify that the printer power indication light is turned.
4. Verify that the printer has no flashing lights or Red or Orange lights. Having red, orange, or any other flashing lights indicates malfunctioning of printer.
5. Run a self-test on the printer. Running a self-test should print a basic page of information indicating the printer is physically working. Your user manual should have the instructions for printing a self-test. If your printer does not print a self-test, it's a good possibility that there is a defect or misconfiguration with your printer, and you should contact the printer manufacturer.

Testing Software Windows users:

1. If possible, make sure your printer can print using the above hardware tests.

2. Install the printer software provided with your printer. If no software was provided with your printer, see the printer driver's page for a listing of printer drivers. Drivers are required for your printer to properly work with the operating system.

3. Click Start, Settings, and Printers. Within the printer's window, verify that your printer manufacturer and model is listed.

4. Print a test page by right-clicking the printer icon and then click the Properties option and click print test page. If the test page does not print, download the latest drivers from your printer manufacturer. For a list of printer drivers, see our printer driver's index.

5. If the page prints successfully, get back into the printers window, right-click the printer and ensure that there is a check next to Set as default. Newer versions of Windows also show a check next to the printer icon once it has been set as the default printer.

Once the printer is set as default, click Start, Run, type notepad, and press Enter. In Notepad, type a test message and click File and Print. If the printer also prints successfully from this program, but you are still unable to print from another program, it is likely that program has an issue and not your printer.