Q-1 Explain Conditional Statements with example.

Ans. - In any language to solve a real time problem one definitely needs to put some conditional statement. These statements are known as Decision making statement.

- PHP supports 4 Decision making statement.

i) If Statement :
- If Statement is used to execute some code only if a specified condition is true.
- It is a simple decision making statement.

ii) If... Else Statement :
- use the if... else statement to execute some code if a condition is true and another code if a condition is false.
- It is called two way decision making statements.

iii) If... Else if Statement :
- If.. elseif Statement is used when the number of condition are more.
- It is useful when developer need to check multiple conditions at same level.

iv) Switch Statement :
- Switch Statement is used when multiple option are there and to select specific option based upon equality of value.

Q-2 write a detail note on looping statements in php.

Ans. - when you want to perform some task repeatedly that time loop is useful.

- In PHP we have following looping structure:

i) while Loop:

- while loop is entry control loop that it checks the condition at time of entry in a loop.

ii) DO while LOOP:

- DO while loop is exit control loop that it checks the condition at time of exit in a loop.

- The body of loop is executing at least one time if condition is false from beginning.

iii) FOR LOOP:

- FOR loop is used when you know in advance how many times the script should run.

iv) Foreach LOOP:

- The foreach loop is used with the array

- For every loop iteration, the value of the current array element is assigned to $value, so on the next loop iteration, you'll be looking at the next array value.

Q.3 Explain the following functions with example
round(), sqrt(), strlen(), strrev(), date().

Ans.

i) round() :

- It returns the rounded value of argument to specified precision.
- Precision can also be negative or zero.
- → Syntax : round (float val[, int precision]);

ii) sqrt() :

- It is used to return square root of the given number.
- It has following syntax :
- → Syntax : sqrt (float arg);

iii) strlen() :

- The strlen() function returns the length of a string.
- → Syntax : strlen (string);

iv) strrev() :

- The strrev() functions reverses a string.
- → Syntax : strrev (string);

v) date() :

- It is used to return current date & time.
- The return value of this function depends upon the parameter passed to it.
- → Syntax : date (string format[, int time stamp])

Q-1 write a detail note on DDL & DML commands with example.

Ans. => Data Definition Language (DDL) :

- Oracle provides various operations for the table Structure.
- Following are commands available in the DDL :

NO.	Command	Description
1.	CREATE	This command is used to create a new table
2.	ALTER	It is used to modify table Structure.
3.	TRUNCATE	It is use to remove all the records from tables.
4.	DROP	It is used to drop the table from the database.

=> Data manipulation Languages (DML) :
- Oracle provides data transaction into the table, user can perform various transaction using following commands :

NO.	Command	Description
1.	SELECT	It is used to view the data of a table.
2.	INSERT	It is used to insert records on the table.
3.	DELETE	It is used to delete data frome the table.
4.	UPDATE	It is used to modify data on the table.

Q.2 Discuss Following commands with example:
GRANT, REVOKE, COMMIT, SAVEPOINT,
ROLLBACK.

Ans. => COMMIT :- This command is use to
store the transuctions permanently.

- It is work same as data buckup facilities
From datubuse.

-> Syntax : COMMIT;

-> Example : commit();

=> ROLLBACK :- It is type of TPL or TGL.

- This command is opposite of commit
command.

- It works like undo command.

-> Syntax : ROLLBACK TO SAVEPOINT <SP.name>;

-> Example : rollback to Suvepoint <mywork>;

=> SAVEPOINT :- It is a type of TPL or TGL.

- This command is used to make section or
partion partition from datubuse for data
recovery).

- It works with rollback command for
data or transuction recovery.

-> Syntax : SAVEPOINT < SAVE POINT - NAME>;

-> Example : Savepoint < Save point - name>;

=> GRANT :- used to grant privileges to table,
views and other object in oracle

-> Syntax : GRANT <system lobject privileges> on
<ob_name/ tablename> To <user.name>

=> REVOKE :- used to revoke assigned priviluges
of table, views and other object in oracle.

-> Syntax : REVOKE <system lobject privileges> on
<obj-name/ tablename > From <user.
name>

Q.3 write a detail note on select command with ORDER BY, GROUP BY, IN and NOT IN condition.

Ans. => SELECT Command: It is used to rettive data from one or more tables in a database.

-> Syntax: SELECT column1, column2, ...
From table-name WHARE condition;

=> ORDER BY command: It is used to sort the result set in ascending (ASC) or descending (DESC) order.

-> Syntax: SELECT column1, column2 FROM table-name ORDER BY column1 ASC, column2 DESC;

=> GROUP BY command: It is used to arrange identical data into groups, often used with aggregate functions like Count, Sum, Avg, max, min.

-> Syntax: SELECT column-name, aggregate-fun.(column-name) FROM table-name GROUP BY column-name;

=> IN command: It is used to filter the result set where a column matches any value in a list.

-> Syntax: SELECT column1, column2 FROM table-name WHERE column-name IN (v1, v2, v3);

=> NOT IN command: It returns rows where the column value does not match any value in the list.

-> Syntax: SELECT column1, column2 FROM tab-name WHERE column-name NOT IN (v1, v2, v3);

Q-1 Explain Types of Constructors in JAVA.

Ams. - A Constructor in java is a special method that is automatically called when an object of a class is created.

i) Default Constructor :- A constructor with no parameters.

→ Syntax : class class_name
{
    class_name ( )

    variable = value;

}

ii) Parameterized Constructor :- A constructor that accepts parameters to initialize objects with user-defin values.

→ Syntax : class class_name {
    class_name (arguments) {
      variables = value;
    }
}

iii) Copy Constructor : A constructor which creates a new objects as a copy of an existing object.

→ Syntax : class class_name {
    class_name (class_name obj_name)
    {
      variable = obj_name.value;
    }
}

Q-2 write a detail note on OOP concepts in JAVA.

Ans. => concepts of OOP:

i) Encapulation :
- wrapping data and code together in a single unit.
- It is achieved using private variable and public getter/setter methods.

ii) Inheritance :
- mechanism by which one class acquires the properties and behaviors of another class.
- It promotes code reusability.

iii) Polymorphism :
- Ability of an object to take many forms.
- It has two types:
 i) Compile-time polymorphism also known as method overlouding.
 ii) Run time polymorphism also known as method overriding.

iv) Abstraction :
- Hiding internal implementation details and showing only necessary features
- Achieved using abstract classes and interfaces.

v) Class :
- A blueprint or template for creating objects
- It defines variables and methods.

vi) object :
- An instance of a class.
- objects have state (data) and behavior. (methods)

Q.3 Discuss the Structure of JAVA Program.

Ams. => Structure of JAVA program:

Documentation Section
Package Section
Import Statement
Interface Statement
Class Definition
main method Class {
// main method defi.
}

i) **Documentation Section:** It includes the comments that improve the readability of the program.

ii) **Package Section:** A package is a collection of Classes, interfaces and sub-packages like collection of Classes, interfaces and sub-packages.

iii) **Import Statement:** many predefined classes are stored in packages in Java, an import statement is used to refer to the classes stored in other packages.

iv) **Interface Section:** This section is used to specify an interface in Java. It is an optional section which is mainly used to implement multiple inheritance in Java.

v) **Class Definition:** A class is a collection of variables and methods that operate on the fields.

vi) **main method class:** Execution of Java application starts from the main method.

Data Communication
&
Networking (minor-4)

Q.1 write y detail not on Data Transmission modes.

Ans: Simplex :

- In Simplex mode, the communication is on a one-way.
- Only 1 device can transmit data, the other can only receive.
- keyboard and monitors is an example of simplex device.
- The keyboard can only input device the monitor can only accept output.

Duplex :

- Each station can both transmit and receive data, but not at the same time.
- when one device is sending, the other can only receive, and vica versa.
- The entire capacity of the channel can be utilized for each direction.
- Example : walkie-talkies

Full-duplex :

- In full duplex mode (duplex) both stations can transmit and receive simultaneously.
- Example : computer networks, Telephone etc.
- when two people are communicating, both can talk and listen at the same time.
- Full duplex mode is used when communication in both directions is required all the time.

Q-2 DISCUSS about ANALOG & DIGITAL data.

Ans. ANALOG Data:

- Analog data is continuous in nature. it represents information in a form that varies smoothly over time.
- It represented by physical quantities such as voltage, current or frequency.
- It can show infinite values within a range.
- Analog Stored in physical form.
- Analog uses Continuous Signals. Quality degrades with distance (noise interference)
- Analog data examples: Thermometer
  - Sound waves
  - Traditional photo-
    graphs.

DIGITAL Data:

- Digital data is discrete in nature. It represents information using binary values.
- It represented in binary form using digits like a digital clock showing numbers like 10:45.
- Digital data is limited to a fixed set of values (less precise, but less affected by noise)
- Digital data Stored in electronic / magnetic form. For example hard drives, memory card.
- Digital data uses discrete signals. easier to transmit long distance with minimal loss
- Digital data examples: CDs, DVDs, mp3s, Text files, PDFs etc..

Q.3 Explain Data Transmission media.

Ans. Data Transmission media:

i) Guided (wired) media:

- In guided media data signals are transmitted through a physical medium such as wires or cables.

A) Twisted pair cable : consists two insulated copper wires twisted together to reduce interference.
- It has two types : i) Unshielded Twisted pair
                      ii) Shielded Twisted pair

B) Coaxial cable : Has a central copper conductor surrounded by insulation, metallic shield, and an outer cover.
- Provides better shielding than twisted pairs.

C) Optical Fiber cable : uses thin glass or plastic fibers to transmit data us pulses of light.
- It has Two types : i) Single-mode fiber
                      ii) multi-mode fiber

ii) unguided (wireless) media : In unguided media, data is transmitted without physical wires, using electromagnetic waves through air or space.

A) Radio waves : Can penetrate walls; Suitable for long distances. use : FM radio, mobile phones. Bluetooth, wi-fi.

B) microwaves : Requires line-of-sight transmission. use : Satellite communication, cellular network.

C) Satellite communication : uses microwaves transmitted to and from satellites in orbit.

Q-1 Give definition of information security and explain all Terminologies in information Security.

Ans. Definition : Information security refers to the practice of protecting information and information systems from unauthorized access, disclosure, modification, destruction or disruption.

Terminology :

1. **Asset** : Anything valuable to an organization such as data, hardware or software.

2. **Threat** : A potential cause of an unwanted incident that may result in harm.

3. **Vulnerability** : A weakness in a system that can be exploited by a threat.

4. **Risk** : The potential for loss or damage when a threat exploits a vulnerability.

5. **Attack** : Any attempt to expose, alter, disable, destroy, steal or gain unauthorized access.

6. **Exploit** : A piece of software or a sequence of commands that takes advan. of a vulnerability.

Q-2 write about Cryptography & Steganography in detail and also explain AES & DSA.

Ans. ⇒Cryptography : Cryptography is the technique of protecting information by converting it into an unreadable form so that only authorized persons can read it.

-> Types of cryptography :

1. Symmetric key cryptography : Same key for encryption & decryption.

2. Asymmetric key cryptography : uses public key for encryption and private key for decryption.

3. Hash functions : converts data into a fixed-length hash.

⇒ Steganography : Steganography is the art of hiding secret message inside normal files like images, audio, video so that no one knows a message exists.

-> Example : 1) Hiding text in the pixels of an image. 2) Embedding data in audio/video files.

⇒ AES :

- Type : Symmetric key block cipher.
- Block size : 128 bits.
- key size :- 128, 192, 256 bits.

⇒ DSA :

- Type : Asymmetric key algorithm.
- purpose : provide digital signatures
- uses :- secure emails, digital certificates etc..

Q.3 write a detail note on basic principles of Information Security.

Ans.

- The CIA Truid is a Foundational model in information Security. representing the three core principles:

i) Confidentiality:
- Ensure that information is accessible only to those who have authorized access.
- protects Sensitive data from unauthorized users.
- Techiques: Encryption, Access Comtrols, Authentication.

ii) Integrity:
- maintains the accuracy and completeness of data.
- prevents unauthorized modification of information.
- Techniques: checksums, hashing, digital Signatures, version comtrol.

iii) Availability:
- Ensures that information and systems are accessible to authorized users when needed.
- Includes maintaining hardware, performing repairs and defending against DOS (Denial-of-service) attacks.
- Techniques: Redundancy, Failover, backups and network security tools.