

SE - IAT2

Q3)

A)

- ① Cohesion implies that a component or class encapsulates only attributes and operations that are closely related to one another and to the class or component itself.
- ② Cohesion is the "single-mindedness" of a component.
- ③ Cohesion and coupling are necessary in making any software reliable and extendable.
- ④ Cohesion is a measure of:
 - i) functional strength of a module
 - ii) A cohesive module performs a single task or function.
- ⑤ Coupling indicates how closely two modules are interacting with each other or how interdependent they are.
- ⑥ Communication and collaboration are essential elements of any object-oriented system.

Types of Cohesion

1) Functional cohesion

- Exhibited primarily by operations, this level of cohesion occurs when a module performs one and only one computation and returns a result.

- Different elements of a module cooperate to achieve a single function.
eg:- managing an employee's pay roll.

2) Layer cohesion

- Exhibited by packages, components and classes
it occurs when a higher layer accesses the services of a lower layer but lower layer cannot access higher layer
- eg:- a safehome security function requirement to make an outgoing phone call if alarm is sensed

3) Communicational cohesion

- All the operations that access the same data are defined within one class
- All reference or update the same data structure
- eg:- update record in database and send it to the printer.

4) Sequential cohesion

- The output of one part is the input to another
- The operations are grouped in a manner that allows the first to provide input to the next and so on

5) Procedural cohesion

- Elements of a component are related only to ensure a particular order of execution
eg:- Bank Transactions

6) Temporal

- Elements are related by timing involved
eg:- An exception handler that closes all open files
creates an error log
Notifies user

7) Logical cohesion

- All elements of the module perform similar operations

eg:- error handling, data input, data output

An example of logical cohesion:

a set of print functions or plot graphs to generate an output report arranged into a single module.

8) Utility cohesion

A class called statistics exhibits utility cohesion if it contains all attributes and operations required to compute six simple statistical measures.