

Software Development

SHORT ANSWER QUESTIONS (60 MARKS)

1. Please explain Object Relational Mapper (ORM) in Laravel.

Laravel's Eloquent ORM (Object-Relational Mapping) is an elegant and powerful feature that simplifies database interactions in PHP applications. It allows developers to work with databases using object-oriented syntax, making the process of querying, creating, updating, and deleting records more intuitive and efficient.

2. What is the ArrayList class in Java?

ArrayList is a collection class that is used to hold a collection of objects. The ArrayList class extends AbstractList and implements the List interface. ArrayList supports dynamic arrays that can grow as needed.

3. What are the main symbols used in a Data Flow Diagram?

- Entity: This represents an entity outside the system that interacts with it. It could be a person, another system, or an organization.
- Process: This represents a function, transformation, or operation that takes input data and produces output data. It's where data is manipulated or transformed.
- Data Store: This represents a place where data is stored. It could be a database, a file, or even a physical location where data is stored.
- Data Flow: This represents the flow of data between various elements in the system. It shows how data moves from one part of the system to another.

4. What is Java programming language used for?

- Building mobile applications
- Building cloud applications
- Building desktop and web applications
- Supporting Artificial Intelligence
- Supporting Internet of Things
- Big Data

5. What is a Data Flow Diagram (DFD) and what is its primary purpose in system analysis and design?

A Data Flow Diagram (DFD) is a visual representation of how data flows through a system. It is a structured technique that helps to model and understand the flow of data in a system, which includes processes, data stores, data sources, and data destinations.

6. What are the benefits of OOP?

- Reusability: Code can be reused through inheritance, meaning a team does not have to write the same code multiple times.
- Productivity: Programmers can construct new programs quicker through the use of multiple libraries and reusable code.
- Easily upgradable and scalable: Programmers can implement system functionalities independently.
- Security: Using encapsulation and abstraction is hidden, software maintenance is easier as code is protected.

7. What are the key concepts of OOP in Java?

- Class and Object
- Encapsulation
- Inheritance
- Polymorphism

8. What is an Entity-Relationship Diagram (ERD) and its use in database design?

An Entity-Relationship Diagram (ERD) is a visual representation that depicts the relationships among entities in a data model in database design as it helps to illustrate the structure of a database, their attributes, and the relationships between them.

9. What is system design and how many key aspects of system design?

System design is the process of planning and defining the architecture, components, modules, interfaces, and data for a system to meet specific requirements. It involves creating a detailed blueprint that serves as a guideline for the actual development, implementation, and maintenance of the system. Key aspects of system design are:

1. Architectural Design
2. Database Design
3. User Interface Design
4. Algorithm Design
5. Security Design
6. Input and Output Design
7. Integration and Interface Design
8. Testing Strategy
9. Documentation

10. What are Non-Functional Requirements?

Non-functional requirements are the constraints that specify the quality attributes of the software such as performance, security, usability, reliability, and scalability.

Computer Multimedia

11. What are the different types of multimedia?

1. Please tell the special function of Pan Tool?

The special function of the Pan Tool is that it can move any camera view without affecting the model view.

2. In Artwork Design, what is the difference between RGB color and CMYK color?

- RGB Color
 - Web or app logos
 - Online buttons or graphics
 - Digital icons
 - Online advertisements
 - Social media images
 - Profile photos
 - Social backgrounds
 - Video
 - GIFs
- CMYK Color
 - Banner
 - Signs or billboards
 - Posters
 - Flyers
 - Brochures
 - Booklet
 - T-shirts
 - Folder
 - Product packaging
 - Restaurant menus

3. How many sub-object modifiers edit polygons? What are they?

Edit polygons have 5 sub-objects:

- Vertices
- Edge
- Border
- Polygon
- Element

4. What does color Offset Printing use and resolution range? And what does color Inkjet Printing use and resolution range?

Offset Printing

- Color: CMYK
- Resolution: 120dpi to 150dpi

Inkjet Printing

- Color: CMYK
- Resolution: 30dpi to 50dpi

5. In the SketchUP program, what is Push/Pull Tool?

- It is a tool to create 3D shapes from any face such as Rectangle, Circle or Polygon...
- It is a tool to cut and make holes in 3D shapes.

6. What is the difference between Save file and Package?

Save file

- Save Single file
- Original file of program
- Missing Links
- Missing Fonts

Package File

- Original file of program
- Collect Fonts
- Collect Links
- Document Info

7. Please tell about Offset printing and Inkjet Printing files for printing.

- Offset Printing
 - PDF file
- Inkjet Printing
 - TIFF

8. What are the functions of Move Tool?

- To Move Objects
- To Stretch Objects
- To Copy Objects when pressing Ctrl Key
- To Rotate Group Object or Component Object

9. When you edit objects that are copied from Component Objects, there is a difference point between objects that are copied from Group Objects, what is that point?

That point is the properties of those Component Objects will be changed together.

10. Why do we usually use LAYER when we draw plans in AutoCAD?

- Easy to manage drawing by types and set different properties
- Easy to turn on/off the drawings in model space and layout space
- Easy to Plot or Publish