List of important questions of Computer System Software

Section A

1. Why objects oriented programming came into existence? Discuss the technical differences between C and C++?

2. Why we need principles of class design? Explain dependency inversion principle with example.

3. Write short notes on

    1. Hybrid inheritance

    2. Abstract Classes

4. What do you mean by the term inheritance? Discuss all the types of inheritance possible with suitable example.

5. What do you understand by the Object Oriented Programming? Compare it with procedural oriented programming.

6. Explain the concept of Object Oriented Design.

7. Differentiate between the overloading and overriding with the help of a suitable example.

8. What do you understand by the term modelling? Explain dynamic modelling and functional modelling.

9. Write short note on:

    1. Template

    2. Virtual functions

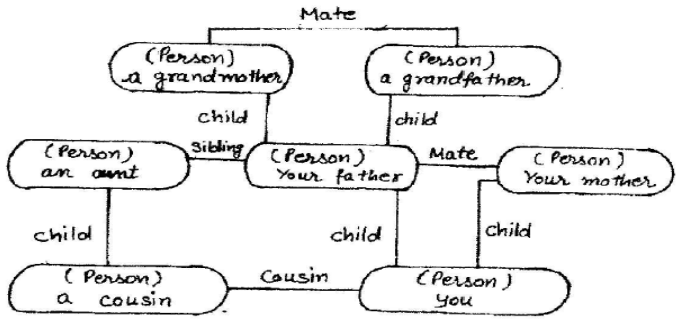
    3. Encapsulation and Abstraction

10. Define the term association and aggregation? Explain the difference between them with the help of suitable example.

Section B

1. What do you understand by Use Case? How a Use case can be drawn in UML?
2. What does a Use case diagram depict? Draw a use diagram for Transaction System in e-banking.
3. How does collaboration diagram helps in specifying various messages? Give an example.
4. Differentiate between Collaboration diagram and Deployment diagram.
5. What do you understand by Class diagrams.

6. Design and illustrate the use cases of all the activities carried out in conducting examination. Give sequence diagram of at least one activity in the context.
7. What do you understand by state? Prepare and explain state diagram for phone line.
8. Prepare a class diagram from the instance diagram given below.



9. Prepare an instance diagram for the class diagram as shown in the fig1.

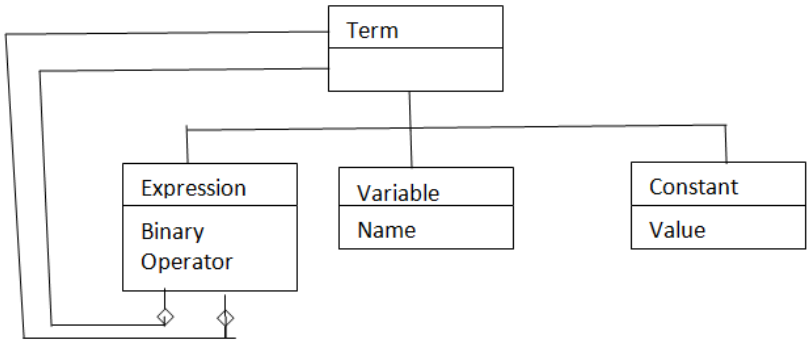


Fig. 1 Class Diagram for simple Arithmetic expression for the expression (P+Q*R)/(P-Q-T/S).Parenthesis are used in the expression for grouping 1 but are not needed in the diagram. The many multiplicity indicates that a term may be used in more than one expression.

10. Write a detailed note on the following :-
    a) Class diagram
    b) Interaction diagram

Section C

1. State dependency inversion principle in detail with a suitable example.

2. State and explain package cohesion and package coupling principle.

3. What do you understand by Interface aggregation principle? Why it is required in object oriented programming.

4. Discuss dependency inversion principle in detail

5. Write short note on open Close principle.

6. Differentiate between open close principle and Interface aggregation principle.

7. List the various principles of the class design. Discuss how they are required at the time of creation and designing a class.

8. State and explain Liskov's substitution principle with the help of suitable example.

9. What do you understand by the term state? Prepare and explain the state diagram for phone line.

10. Differentiate between Liskov's substitution principle and open close principle of class design.

Section D

1. Explain the system software design issues in detail.

2. Draw the flow chart of first pass assembler. Give the details of various tables employed by an assembler

3. What is a relative loader? Explain working in brief.

4. List and explain the various tables employed by the macro processor.

5. What is generic programming? How it is implemented in C++? Distinguish between loaded function and function template with example.

6. Differentiate between loader and linker.

7. Why macro processor is called pre-processor?

8. What are the data structures/tables used by a macro processor?

9. If the macro processor were to handle nested macro calls, what modifications you would like to make to the tables.

10. What role the relative loader plays in assuring the dynamic binding. Also differentiate between static binding and dynamic binding.