Software Engineering I Important Questions

1). Define software process?
2). What is software engineering?
3). Explain 5 reasons why you need software engineering.
4). Discuss the characteristics of good software.
5). Discuss the nature of software citing examples where possible.

Process Models/SDLC Models

6). Explain different activities on software process framework.
7). Explain why the waterfall model of the software engineering is not an reflection of software development activities.
8). How does agile methodology help project managers?
9). Explain agile principles and manifesto.
10). Discuss the different types of prototypes. How do they work? When are they best used?
11). What are the conditions where the following model is preferred
   a. Waterfall
   b. RAD
   c. Spiral
   d. Prototyping
   e. Incremental
   f. evolutionary
12). Explain the advantages and disadvantages of the models in the question above.
13). Using a neat diagram, discuss how each process model in the above question works.
14). Explain in detail spiral model and compare it with component model

Requirements Engineering

15). Differentiate between functional and non functional requirements.
16). Differentiate between user and systems requirements.
17).

18).   Explain the importance of requirement engineering.

19).   How can you establish ground work in requirement engineering.

20).   Describe the importance of requirement engineering and list the tasks involved.

21).   Discuss the requirements engineering tasks.

22).   Explain the task done during elicitation and requirement management.

23).   Why is requirement elicitation difficult?

24).   What are the problems associated with requirement elicitation? How can you overcome them?

25).   What is the difference between requirements inception & elicitation?

26).   Explain the activities and the steps used for negotiating software requirements?

27).   Explain the situations that can lead to requirements negotiations?

28).   Explain in detail requirement engineering process.

29).   What does it mean feasibility study in requirement elicitation?

30).   State and explain the different methods of requirements elicitation.

31).   What are the characteristics of good SRS?

32).   What is the need of SRS?

33).   Explain the SRS with an example.

The Kano Model

34).   Based on the kano analysis, explain how to prioritize software requirements.

35).   Using a diagram explain the kano model.

Requirements Modelling

36).   What are the components of a use case diagram? Explain their use with the help of an example.

37).   Explain in details use case diagram and activity diagram.

38). What is an activity diagram? Explain with an example.

39). Draw and explain class diagrams for any web application.

40). Draw the state diagram of ATM operations.

41). Draw the use case diagram of ATM Systems and sequence diagram of the ATM withdraw function.

Design Concepts

42). Explain the different software design concepts.

43). What is the relationship between modularity and functional independence?

44). What do you mean by term cohesion and coupling in the context of software design?

45). How are the concepts of coupling and cohesion useful for good system design?

46). Why should software design have high cohesive and low coupling? Justify your answer

47). Answer briefly each of these questions about refactoring.
   a. What is refactoring?
   b. What role does refactoring play in the design of software?
   c. What is the relationship between refactoring and testing?

48). Describe briefly what the term design pattern mean. Give two examples of design patterns.

49).