PAPER-II

GROUP B:SOFTWARE ENGINEERING

UNIT-1

1 .Explain the term software engineering. What are the key challenges that a software engineering is facing?
2 What is software engineering? Explain various process characteristics.
3 What are the activities in project planning?
4 Describe the components of a legacy system and give block diagram for the same.
5 What is inspection process? Explain roles of inspection process and possible inspection checks.

UNIT-2

1) What is software process model? Why incremental model is called hybrid model? Explain it with a neat diagram quoting its merits and demerits.
2) Write a block diagram that illustrates classification of CASE from integration perspective
3) Why is project planning a iterative activity? Briefly explain the purpose of each section in a project plan
4) Define dependability of a computer system. What are the four principal dimensions of dependability?
5) What are the benefits of developing a system prototype? Compare evolutionary prototyping with throw away prototyping
6) Explain why for large system development it is recommended that prototypes should be throwaway prototypes.
7) With the help of a diagram explain Boehm's spiral model of the software process. What are its advantages over waterfall method?
8) Explain how both the waterfall model and prototyping model can be accommodated in spiral process model.
9) Draw evolutionary prototyping flow diagram and mention its two main advantages
10) With an example describe the repository model and discuss its advantages and disadvantages.

11) What are the advantages and disadvantages of evolutionary and throwaway prototyping?
12) Explain any two rapid prototyping techniques.
13) Explain the term software engineering. What are the key challenges that a software engineering is facing?
14) What is software process model? Why incremental model is called hybrid model? Explain it with a neat diagram quoting its merits and demerits.
15) Write a block diagram that illustrates classification of CASE from integration perspective.
16) Highlight on essential attributes of a good software.
17) Show how both waterfall model and prototyping model can be accounted in spiral model.
18) What is software validation? Explain with an example.
19) Describe the professional responsibilities of a software engineer.
20) Describe the functional classification of CASE tools.
21) Briefly discuss the Bohem's spiral model. Compare it with prototyping

UNIT-3

1.Write the importance of requirements validation. List the various validation techniques and explain any one in detail.
2.What are the problems in using natural language for specifying system requirements? Explain how structured natural language overcomes these problems with an example.
3.Write short notes on:
a.Metrics for non functional requirements
b.Ethnography
4.What is requirement definition and specification? With the help of a diagram explain the requirement engineering process.
5.Write short notes on:
a.Ethnography
b. Metrics for non functional requirements
6.Stress Testing
7.Clean room software development

8.Explain the structure of software requirements document.
9.Why elicitation and analysis if difficult process? Explain giving reasons.
10.What are the different types of checks that should be carried out on requirements in requirement document?
11. Describe three different types of non functional requirements which may be placed on a system. Give examples of each of these different types of requirements
12.Give the IEEE standard format for requirement document.
13.Indicate the principal stages of VORD
14.Describe the requirements elicitation and analysis with a neat figure.
15.Explain the various types of checks to be carried out during requirements validation.
16.What are the various types of volatile requirements?
17.Describe the functional and non-functional requirements with examples.
18.With an example, explain the use of view point template and service template in VORD method.
19.Identify four different matrix for specifying non-functional requirements.
20.What is the objective of requirements engineering? Illustrate the various activities of requirements engineering with a neat diagram.
21.Why is project planning a iterative activity? Briefly explain the purpose of each section in a project plan.
22.From the evolution perspective classify the requirements of a software product.
23.What are the various metrics for specifying non-functional requirements? Explain any one.
24.Explain the requirements elicitation and analysis process.
25.Explain evolutionary prototyping. Justify that programs developed using evolutionary development are likely to be difficult to maintain.
26.Describe the functional and non-functional requirements with examples.
27.With an example, explain the use of view point template and service template in VORD method.
28.Identify four different matrix for specifying non-functional requirements.

UNIT-4

1.What is the difference between milestone and deliverable?
2.Based on your experience with a bank ATM draw a DFT modeling the proceeding involved when a customer withdraws cash from the machine.
3.What are the benefits of developing a system prototype? Compare evolutionary prototyping with throw away prototyping.
4.What are control models? Write a brief note on call return control model.
5.What is data dictionary? Discuss its structure and uses.
6.Develop an aggregation diagram showing the components of a library system.
7.Highlight the enduring and volatile requirements. Also give the classifications of volatile requirements.
8.Write short notes on:

a. Product metric.
b. Case workbench
c. Reverse Engineering
d. Centralized control model.

9.With an example describe the repository model and discuss its advantages and disadvantages.
10.What are the advantages and disadvantages of evolutionary and throwaway prototyping?
11.Explain any two rapid prototyping techniques.
12.What are the areas covers by ISO 9001 model for quality assurance?
13.Explain software quality attributes.
14.Identify the risks and risk types.
15.Explain the COCOMO2 costing model.
16.Describe the project planning process, give pseudo code.
17.Describe the factors affecting software engineering productivity
18.Write short notes on:

a.Path testing
b.Context models
c.Activity network
d.Safety life cycle

UNIT-5

1.What are user interface design principles?

2.Briefly outline the techniques for user interface evolution.

3.Illustrate with two examples for object and oriented class.

4.Explain the approach used by COCOMO model to estimate the person months for a software project

5.With a neat diagram explain the logical parts of a legacy system.

6.Illustrate with two examples for object and oriented class.

7.With an example describe the repository model and give its advantages and disadvantages.

8.Explain different types of user interaction styles. Give advantages, disadvantages and applications for each style.

9.Describe the characteristics of an OOAD, its advantages and explain the typical activities performed during this process.

10.For each of the following three interaction styles, identify advantages, disadvantages and the application examples where they are used.

i. Direct manipulation
ii. Menu selection and
iii. Forms fill in

11.Briefly discuss four usability metrics

12.Explain the key challenges facing software engineering.

13.What is process iteration? Describe the hybrid models of software development.

14.Describe the general model of design process.

UNIT-6

1.With a neat diagram explain the logical parts of a legacy system.

2.What are user interface design principles?
3.Briefly outline the techniques for user interface evolution.
4.Define dependability of a computer system. What are the four principal dimensions of dependability?
5.What are the advantages and disadvantages of a client server model?
6.Discuss in detail both centralized and event based control models with examples.
7.What are the five different types of user and system documents supplied with any software systems?
8.What is dependability? Precisely define the four factors.
9.Explain POFOD, ROCOF with examples.
10.Explain reverse engineering process. What are the advantages and disadvantages?
11.What is modular decomposition? Explain dataflow model of an invoice processing system.
12.Draw and explain sequence diagram and state diagram for a typical weather station.
13.What are the guidelines that should be followed while using colour in a user interface?

UNIT-7

1.Write the difference between black box testing and structural testing. With a suitable example explain black box testing approach.
2.Explain how back-to-back testing may be used to test their own programs in an objective way.
3.Describe the difference between black-box and structural testing and suggest how they can be used together in the defect testing process.
4.Using your knowledge of C++ programming language, derive a checklist of common errors (not syntax errors) which could not be detected by a compiler but which might be detected in a program inspection.
5.Distinguish between software verification and validation.
6.For the Figure 5c shows a simple flow graph of a program. Indicate the minimal set of paths that satisfies white-box strategies.

7.What is verification and validation?
8.Explain static and dynamic testing technologies.
9.Briefly explain with a diagram clean-room software development.
10.Explain the differences between white-box and black-box testing.
11.Compare black-box testing with white-box testing.
12.Explain interface types and interface errors in interface testing.
14.Write short notes on:
a.Clean room software development
b.Stress Testing
15.Write the importance of requirements validation. List the various validation techniques and explain any one in detail.
16.What are the problems in using natural language for specifying system requirements? 17.Explain how structured natural language overcomes these problems with an example.
18.What is the difference between milestone and deliverable?
19.What is verification and validation?
20.Explain static and dynamic testing technologies.
21.Briefly explain with a diagram clean-room software development.
22.Explain the differences between white-box and black-box testing
23.Which is the widely used method of validating the quality process or product? Explain.
24.Describe the static product metrics for assessing the quality attributes.
25.Why assessment of legacy systems is required? Describe the strategies used for evolving these systems.

UNIT-8

1.Illustrate with an example how COCOMO model is used to estimate person months.
2.Which are the metrics available for specifying the reliability requirements quantitatively?
3.What are the types of errors discovered through program inspection?

4.Write the difference between black box testing and structural testing. With a suitable example explain black box testing approach.
5.What do you mean by reliability metric? Explain any two metrics which helps in assessment of system performance.
6.Explain various safety terminologies.
7.Illustrate with an example how COCOMO model is used to estimate person months.
8.What are the benefits of developing a system prototype? Explain.
9.Describe software process with throwaway prototyping. What are the problems with this approach?
10.What is CASE workbench? Describe the tools included in an analysis and design workbench.