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Question Paper Code : 40907

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Fourth Semester

Computer Science and Engineering

CS6403 – SOFTWARE ENGINEERING

(Regulations 2013)

Time : Three Hours Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. What is Software ? List its characteristics.
2. If you have to develop a word processing software product, what process model will you choose ? Justify your answer.
3. What are the various types of traceability in software engineering ?
4. Compare prototyping approaches in a software process.
5. List the principles of software design.
6. What UI design patterns are used for the following ?
7. What are the testing principles the software engineer must apply while performing the software testing ?
8. Distinguish between verification and validation.
9. What is EVA ?
10. Identify the type of maintenance for each of the following :

    a) correcting the software faults

    b) adapting the change in environment.

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PART – B (5×13=65 Marks)

11. a) Explain how work break down structure is used in software engineering. Discuss how software project scheduling helps in timely release of a product.

(OR)

b) Which software process model is good for risk management ? Explain the model. Describe how the model is used to layout the objectives, risks and plans for quality improvement.

12. a) What is requirements elicitation ? Briefly describe the various activities performed in requirements elicitation phase with an example of a watch system that facilitates to set time and alarm.

(OR)

b) What is SRS ? Explain in detail the various components of an SRS.

13. a) What is software architecture ? Describe the different software architectural styles with examples.

(OR)

b) Explain in detail types of cohesion and coupling with examples.

14. a) i) Consider the pseudocode for simple subtraction given below : (9)

1) Program 'Simple Subtraction'
2) Input (x, y)
3) Output (x)
4) Output (y)
5) If x > y then DO
6) x – y = z
7) Else y – x = z
8) EndIf
9) Output (z)
10) Output "End Program".

Perform basis path testing and generate test cases.

ii) Explain top down integration testing with an example. (4)

(OR)

b) Write notes on :

i) regression testing
ii) refactoring
iii) debugging.

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15. a) i) Describe in detail COCOMO model for software cost estimation. (9)

ii) If Team A found 342 errors prior to release of software and Team B found 182 errors. What additional measures and metrics are needed to find out if the teams have removed the errors effectively ? Explain. (4)

(OR)

b) Discuss the process of function point analysis. Explain function point analysis with sample cases for components of different complexity.

PART – C (1×15=15 Marks)

16. a) What is the purpose of DFD ? What are the components of DFD ? Construct DFD for the following system :

An on-line shopping system for XYZ provides many services and benefits to its members and staffs. Currently, XYZ staffs manually handle the purchasing information with the use of basic office software, such as Microsoft Office Word and Excel. It may results in having mistakes easily and the process is very inconvenient. XYZ needs an online shopping system at their Intranet based on the requirements of users. XYZ online shopping system has five key features :

i) to provide the user friendly online shopping cart function to members to replace hardcopy ordering form;

ii) to store inventory and sales information in database to reduce the human mistakes, increase accuracy and enhance the flexibility of information processing;

iii) to provide an efficient inventory system which can help the XYZ staffs to gain enough information to update the inventory;

iv) to be able to print invoices to members and print a set of summary reports for XYZ's internal usage;

v) to design the system that is easy to maintain and upgrade.

(OR)

b) Consider the problem of determining the number of different words in an input file. Carry out structured design by performing transform and transaction analysis construct the structured chart.