Register Number.....

B. TECH. DEGREE EXAMINATIONS: APRIL/MAY 2009

Fourth Semester

INFORMATION TECHNOLOGY

U07CS603 Software Engineering

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (20 x 1= 20 Marks)

1. Which of the items listed below is not one of the software engineering layers?
   (a) Process (b) manufacturing
   (c) Methods (d) tools
2. The linear sequential model of software development is
   (a) A reasonable approach when requirements are well defined.
   (b) A good approach when a working program is required quickly
   (c) The best approach to use for projects with large development teams.
   (d) An old fashioned model that is rarely used any more
3. The WINWIN spiral model of software development is
   (a) Used when requirements must be defined by customer negotiation.
   (b) Useful when a customer is able to provide requirements completely
   (c) The best approach to use for projects with large development teams
   (d) Like the spiral model without the risk assessment step.
4. Statistically, the maximum percentage of errors belong to the following phase of SDLC
   (a) Coding (b) Design
   (c) Specifications (d) Installation and maintenance
5. What type of models are created during software requirement analysis?
   (a) Functional and behavioral (b) usability and reliability
   (c) Algorithmic and data structure (d) architectural and structural
6. The Customers/Users specify unnecessary technical detail which confuse system objective. This problem is called .....
   (a) Problem of understanding (b) Problem of scope
   (c) Problem of political factors (d) Problem of design
7. Evolutionary prototyping is generally preferred to throw away prototyping because it
   (a) allows reuse of the initial prototype. (c) is easier to quickly
   (b) does not require as much customer involvement (d) is more reliable

8. Attributes which are divided into subparts are called as .....

(a) composite attributes (b) simple attributes

(c) derived attributes (d) multivalued attributes

9. The check-in and check-out process helps with which element of change control?

(a) budget control (b) version control

(c) object control (d) synchronization control

10. ..... is a process of elaboration which causes the designer to elaborate the original statement.

(a) Abstraction (b) Refinement

(c) Data Structure (d) Modularity

11. Control hierarchy represents the

(a) decision order (b) organization of modules

(c) repetition of operations (d) sequence of processes

12. Cohesion is a qualitative indication of the degree to which a module

(a) can be written more compactly (b) focuses on just one thing 2

(c) is able to complete its function in a timely manner

(d) is connected to other modules and the outside world

13. What type of errors are missed by black-box testing and can be uncovered by white-box testing?

(a) behavioral errors (b) subtle logic errors 21

(c) performance errors (d) input error

14. Real-time applications add a new and potentially difficult element to the testing mix

(a) performance (b) reliability

(c) security (d) time 22

15. Conditional testing is a control structure testing technique where the criteria used to design test cases is that they

(a) rely on basis path testing

(b) exercise the logical conditions in a program module

(c) select test paths based on the locations and uses of variables 22

(d) focus on testing the validity of loop constructs

16. The cyclomatic complexity metric provides the designer with information regarding the number of 23

(a) cycles in the program (b) errors in the program

(c) independent logic paths in the program (d) statements in the program

17. Halstead's source code metrics are based on the number of

(a) modules in the program

(b) operators and operands in the program

(c) number of Boolean conditions in the program

(d) volume elements in the program

18. Which testing is conducted at the developer's site by a customer?

(a) alpha testing (b) beta testing

(c) unit testing (d) smoke testing

19. A CASE tool used to analyze source code without executing test cases is

(a) dynamic measurement (b) simulation

(c) static measurement (d) code-based testing tools

20. ..... is the simplest among all metrics to estimate project size

(a) function point (b) cyclomatic complexity

(c) LOC (d) cocomo model

PART B (5 x 16 = 80 Marks)

21 (a) (i) In which process model the first increment is a core product? Explain this model in detail (8)

(ii) Explain the spiral model? What are the task regions in spiral model? Give the advantages and disadvantages. (8)

(OR)

21 (b) (i) How do you differentiate software engineering from system engineering? Also write brief notes on computer based systems and system engineering hierarchy. (16)

22 (a) (i) What are prototyping techniques? How prototype models are prepared for a software process? Discuss. (12)

(ii) What is a Context diagram? Draw a context diagram for safe home security system. (4)

(OR)

22 (b) (i) State and explain requirements engineering process in detail with proper sketches. (16)

23 (a) (i) Explain Cohesion and Coupling? Explain how this is going to affect the performance of software? (12)

(ii) Explain briefly Software configuration audit? (4)

(OR)

23 (b) (i) Explain the fundamental software design concepts in detail. (16)

24 (a) (i) Explain black box and white box testing. Give the merits and demerits of both approaches. (8)

(ii) What you mean by boundary value analysis? Give the two example of boundary value testing? (8)

(OR)

24 (b) (i) Distinguish between black box and white box testing. (6)

(ii) What are all the formulas for cyclomatic complexity?. Explain briefly? Calculate cyclomatic complexity for greatest of three numbers. (10)

25 (a) (i) Explain constructive cost model in detail. (8)

(ii) Give the structure of CASE repository and explain popular CASE tools that you are aware of? (8)

(OR)

25 (b) (i) Justify the statement "software maintenance is costlier". (8)

(ii) How is earned value computed to assess the progress? (8)

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