KUMARAGURU
college of technology
character is life

Register Number:……….….

M.E. DEGREE EXAMINATIONS: JAN 2015

(Regulation 2014)

First Semester

COMPUTER SCIENCE AND ENGINEERING

P14CST103**:** Software Engineering Methodologies

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. What is the fundamental reason that software cannot be considered to be engineered?   [K2]

   a) It is designed by humans and therefore flawed
   b) Software engineering (as opposed to other forms of engineering, such as Civil) is an art - not a science
   c) The discipline is relatively new, say in comparison to bridge building that is an activity that has millennia of practice
   d) The complexity of systems and their interaction continues faster than we can understand it.

2. Match the following.   [K2]

List - I	List -II
A. Waterfall model	1. Determine objectives, Risk analysis, Construction, Planning
B. Unified process	2. Requirements, Analysis, Design, Coding, Testing, Deployment
C. Spiral model	3. Inception, Elaboration, Construction, Transition

	A	B	C
a)	3	2	1
b)	3	1	2
c)	2	3	1
d)	1	3	2

3. Black box testing can be called as _____   [K2]

   a) Data flow testing
   b) Loop testing
   c) Behavioral testing
   d) Graph based testing

4. What is the major drawback of using RAD Model?   [K3]
   i) Highly specialized & skilled developers/designers are required.
   ii) Increases re-usability of components.
   iii) Encourages customer/client feedback
   a) i) only
   b) ii) only

c) all the three d) Both i) & ii)

5. Which of the following statements are correct? [K₃]

   i) Each occurrence of a data object may be related to multiple occurrences of a related data object is called modality

   ii) The number of subordinate modules serving the needs of a higher level module in the hierarchy should be kept reasonably low.

   a) i) only b) ii) only

   c) both i) and ii) d) Neither i) nor ii)

6. Efficiency in a software product does not include _____ [K₃]
   i) responsiveness
   ii) licensing
   iii) processing time
   iv) memory utilization

   a) i) , iii) and iv) b) ii) & iv)
   c) i) & iv) d) ii) only

7. **S1**-Coupling is the strength of dependencies between two subsystems. [K₂]
   S2-Cohesion is the strength of dependencies within a subsystem.
   Objective: A good decomposition is achieved by maximizing cohesion within each module, while minimizing coupling between subsystems.

   a) S1, S2 & Objective are correct b) S1 & S2 are individually true and the objective is not correct.
   c) S1 is true, S2 is false and the Objective is correct. d) S1 & S2 are individually not true and the objective is correct.

8. **S1:** Activity diagram shows the sequence of steps/operations that makeup a process achieving a functionality [K₂]
   S2: Sequence diagram shows the participants in an interaction and the sequence of messages transmitted among them

   a) S1 is false, S2 is true b) S1 is true, S2 is false
   c) Both S1 & S2 are true d) Both S1 & S2 are false

9. Cyclomatic complexity is given by _____ [K₂]

   a) No. of nodes + No. of edges + 2 b) No. of edges + No. of nodes - 2
   c) No. of nodes - No. of edges + 2 d) No. of edges – No. of nodes +2

10. Availability is given by_____ (where MTTF is Mean Time to Failure & MTTR is Mean Time to Repair) [K₂]

    a) MTTF/(MTTF+MTTR) b) MTTR/(MTTF+MTTR)
    c) MTTF/(MTTF-MTTR) d) MTTR/(MTTR-MTTF)

PART B (10 x 2 = 20 Marks)

11. List any two characteristics of software that are not shared by hardware products. [K₁]

12. Determine the purpose of "proof-of-concept prototype". [K₂]

13. Differentiate between client "needs" and "wants". [K₂]

14. Distinguish between a user and an actor in the context of a use case diagram. [K₂]

15. Determine the main issues to be addressed while partitioning a large software system. [K₂]

16. Distinguish between Validation testing with Verification testing. [K₂]

17. List down the software configuration items. [K₁]

18. Interpret the use of Gantt chart in monitoring project activities. [K₂]

19. Identify the project situations which demand RAD model of software development. [K₂]

20. Identify an example of extreme situations for which stress testing on software is recommended. [K₂]

PART C (6 x 5 = 30 Marks)

21. Explain why "continuous integration" of code is favored in Extreme programming? [K₂]

22. Validate the claim of job performance and verification carried out in parallel during pair programming. [K₅]

23. Explain with context details, response time requirements for a computer based system for [K₂]
    a) batch processing for a payroll preparation
    b) Online Transaction Processing
    c) automatic control of a process plant
    d) a video game gadget

24. Illustrate how backtracking helps in debugging a failed program. [K₂]

25. Compare the use of "Driver" and "Stub" in the context of testing. [K₂]

26. Categorize the various risk factors associated with a software project. [K₂]

PART D (4 x 10 = 40 Marks)

27. Explain the different phases of development in unified process showing the workflows with a neat sketch. [K₂]

28. Explain the COCOMO model for effort estimation in developing a software. [K₂]

29. Contrast the QA processes employed in a manufacturing industry with those employed for software development. [K₄]

30. Describe various testing strategies followed during code generation and system testing [K₂]

****