KATHMANDU UNIVERSITY
End-Semester Examination
February/March, 2018

Marks Scored:

Level : B.E./B.Sc.
Year : IV

Course : COMP 401
Semester: I

Exam. Roll No.:

Time: 30 mins.

F.M. : 10

Registration No.:

Date FEB 2 6 2018

SECTION "A"
[20 Q.×0.5=10 marks]

Pick the correct answer.

1. Software engineering is the out-growth of hardware and _____.
   [a] software
   [b] operating system
   [c] system engineering
   [d] system application

2. Which one is not a method in software engineering?
   [a] project management
   [b] procedures
   [c] design
   [d] maintenance

3. Odd one out from the followings with respect to software quality.
   [a] flexibility [b] testability [c] modifiability [d] efficiency

4. Odd one out from the followings regarding unpredictability in agile process.
   [a] analysis [b] design [c] construction [d] maintenance

5. Which is not a key term used in XP?
   [a] Use Case [b] AM [c] KIS [d] CRC

6. Which of the followings statement is NOT True?
   [a] SRS document should only specify external system behavior
   [b] SRS document should be easy to change
   [c] SRS document should characterize acceptable responses to undesired events
   [d] SRS document should specify only internal system behavior

7. Which one guides the manner in which the model is created?
   [a] constraints [b] simplifications [c] limitations [d] assumptions

8. Regarding software project management, the following statement is True.
   [a] Software product is tangible
   [b] There is standard process
   [c] Large software projects are often "one-off" projects
   [d] Large software projects are often "off-the-shelf" projects

9. Which one is an implementation oriented document?
   [a] Requirement Definition
   [b] Requirement Specification
   [c] Software Specification
   [d] Functional Specification

10. Which one is Boem Simple Model?
[a] $3.2 * (KLOC)^{1.05}$ [b] $5.2 * (KLOC)^{0.91}$
[c] $3.2 * (KLOC)^{0.91}$ [d] $5.2 * (KLOC)^{1.05}$

11. Which one of the followings shows who is responsible for each activity?
[a] Bar Charts [b] Activity Network
[c] PERT Charts [d] All

12. Which one of the followings is FALSE regarding reusable software resources?
[a] cataloged [b] standardized [c] verified [d] validated

13. What is the range of complexity adjustment values?
[a] 1 – 14 [b] 0.9 - 1.4 [c] 0.16 - 0.39 [d] 1 - 6

14. Which one of the followings software quality signifies software recovery?
[a] Robustness [b] Resiliency [c] Adaptability [d] Safety

15. Which one is testability?
[a] How easily a computer program cannot be tested
[b] How adequately a particular set of tests will uncover the product
[c] Both
[d] None

Fill in the blanks.

16. It is good to select the test cases that exercise_____.

17. In transaction flow modeling, the link represent_____.

18. In _____, new comers attend the review as observers.

19. _____ is a statistical technique.

20. _____ begins with delineation of software functions obtained from the project scope.

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F.M. : 40

SECTION "B"
[6 Q.×4=24 marks]

Attempt any ***SIX*** questions (**Q. No. 4 is compulsory**).

1. Why we need software engineering? Briefly explain different qualities of software product.

2. What is agility? What are the new practices that industrial extreme programming (IXP) does incorporate? Explain them.

3. With an example, describe system engineering hierarchy.

4. With suitable example, discuss on requirements definition and requirements specification.

5. How software project management is different from other types of engineering project management? Briefly explain the structure of a project plan.

6. Why software standards are important? Explain Software Quality Reviews.

7. What do you mean by project estimation? Explain the factors that affect project estimation.

SECTION "C"
[2 Q.×8=16 marks]

Attempt any ***TWO*** questions (**Q. No. 8 is compulsory**).

8. With an appropriate pseudo-code, prove that all four methods of Cyclomatic Complexity (CC) computation result the same value. Ensure that the value of the CC is at least 5.

9. Describe COCOMO Model. Suppose that a software project consists of five (5) major components A, B, C, D, and E and the number of occurrences of each component is 7, 9, 6, 11, and 10 respectively. The historical project data shows that the delivered lines of code of the components A, B, C, D, and E are 6500, 8500, 6900, 7700, and 8700 respectively. Provided constant values for $a_b = 2.4$, $b_b = 1.05$, $c_b = 2.5$ and $d_b = 0.35$, calculate (a) Effort (b) Duration, and (c) Average Number of People.

10. By referring to the activity duration and dependency chart below, draw activity network and activity bar chart. Also, trace the critical path and calculate the time required to finish the project.

Task	Duration	Dependency
T1	8	
T2	15	
T3	7	T1 (M1)
T4	13	
T5	11	T2, T4 (M2)
T6	5	T1, T2 (M3)
T7	17	T1 (M1)
T8	29	T4 (M5)
T9	10	T3, T6 (M4)
T10	19	T5, T7 (M7)
T11	6	T9 (M6)
T12	5	T11 (M8)
T13	11	T12 (M9)