KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2017

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 : MAR 2 6 2017

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Pick the Correct Answer.

1. Which one of the followings provides a vast number of tasks?
[a] Procedure [b] Tool [c] Method [d] Function

2 Odd one out from the followings.
[a] Correctness [b] Usability [c] Integrity [d] Reusability

3. Software engineering
[a] focuses on the process of software development
[b] focuses on the software product
[c] both (a) & (b)
[d] None

4. Odd one out from the followings.
[a] Interface between modules [b] Algorithms
[c] Data structure [d] Output format

5. Which one of the followings is time-box in XP?
[a] 30 days [b] 14 days [c] 28 days [d] 21 days

6. In Agile development, FDD stands for
[a] Function Driven Development
[b] Function-point Driven Development
[c] Feature Driven Development
[d] Format Driven Development

7. Which one of the followings is TRUE regarding a system?
[a] It can be a product [b] It can be a service
[c] It can be a technology [d] All of the above

8. Which one of the followings is FALSE regarding information engineering?
[a] Data Architecture [b] Application Architecture
[c] System Architecture [d] Technology Infrastructure

9. Which one of the followings is a basis for design and implementation?
[a] Requirement Definition [b] Software Specification
[c] Requirement Specification [d] Feasibility Study

10. Which one of the followings requirement is related to the better understanding of the system?
[a] Emergent requirement
[b] Mutable requirement
[c] Consequential requirement
[d] Compatibility requirement

11. There are following types of project plan.
[a] six
[b] five
[c] three
[d] four

12. Bailey-Basili Model is
[a] $5.5 + 0.73 * (KLOC)^{1.16}$
[b] $5.2 + 0.73 * (KLOC)^{1.16}$
[c] $5.5 + 0.74 * (KLOC)^{1.047}$
[d] $5.5 + 0.73 * (KLOC)^{1.047}$

13. In the software equation [PUT92], the value of productivity parameter P for business system applications is
[a] 10000
[b] 28000
[c] 2000
[d] 5000

14. Which one of the followings is the number for types of cost drivers?
[a] three
[b] five
[c] four
[d] six

15. Which one of the followings is not the activity of software quality manager?
[a] Quality review
[b] Quality assurance
[c] Quality planning
[d] Quality control

Fill in the blanks.

16. Once an acceptable level of _____has been attained, product quality naturally follows.

17. _____ represents the ultimate review of specification, design and coding.

18. Logical errors and incorrect assumptions are _____ to the probability that a program path will be executed.

19. _____ introduces at least one new set of processing statements or a new condition.

20. Equivalent class represents a set of _____ for input condition.

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Time : 2 hrs. 30 mins.

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Semester : I
F. M. : 40

SECTION "B"

[6Q × 4 = 24 marks]

Attempt *ANY SIX* questions (Q. No. 6 is Compulsory).

1. Define software engineering. Explain its significance in the field of computer system.
2. With diagram, briefly explain *system engineering process*.
3. Define requirements *validation*. With diagram, explain requirements *evolution*.
4. Describe *problem-based estimation* and *process-based estimation*.
5. How could we ensure the quality of software process? Briefly explain quality *reviews*.
6. What do you mean by *Cyclomatic Complexity* (CC) of a program? Prove that all four ways of CC computation result the same value.
7. Briefly explain different types of *black-box testing* methods.

SECTION "C"

[2Q × 8 = 16 marks]

Attempt *ANY TWO* questions (Q. No. 9 is Compulsory).

8. What is an *agile* development? Describe the *XP* (Extreme Programming) values. With diagram, explain *Scrum* process flow. [2+2+4]
9. *IoT* (Internet of Things) is inter-networking of smart devices enabling them to collect and exchange data and controlling them over the internet. Write four (4) key requirements definition and their specifications for the *IoT* system. [2+6]
10. By referring to the activity duration and dependency chart given below, draw *activity network* and *activity bar chart*. Also, trace the *critical path and calculate the time* required to finish the project. [4+2+2]

Task	Duration	Dependencies
T1	7	
T2	11	
T3	9	T1 (M1)
T4	10	
T5	14	T2, T4 (M2)
T6	5	T1, T2 (M3)
T7	20	T1 (M1)
T8	19	T4 (M5)
T9	10	T3, T6 (M4)
T10	15	T5, T7 (M7)
T11	17	T9 (M6)
T12	10	T11 (M8)