

KATHMANDU UNIVERSITY  
End Semester Examination  
August, 2019

Mark Scored:

Level : B. Sc.  
Year : IV

Course : COMP 401  
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date **AUG 16 2019**

SECTION "A"

[20 Q × 0.5 = 10 marks]

Pick the correct answer.

1. Design of data structure falls under which key element?  
[ a ] method                      [ b ] tool                      [ c ] procedure                      [ d ] function
2. Integrity is related to which quality dimension?  
[ a ] operation of the system                      [ b ] product transition  
[ c ] maintenance                      [ d ] none of the mentioned
3. Which one characterizes how software systems are actually developed?  
[ a ] prescriptive life cycle model                      [ b ] descriptive life cycle model  
[ c ] both a and b                      [ d ] none of the mentioned
4. Which one is a prioritized list of high level project requirements or features?  
[ a ] user story                      [ b ] backlog                      [ c ] sprint                      [ d ] functionality
5. How many system elements are there?  
[ a ] 4                      [ b ] 5                      [ c ] 6                      [ d ] 7
6. Which one helps to be bound a system?  
[ a ] assumptions                      [ b ] simplifications                      [ c ] limitations                      [ d ] constraints
7. Which is also known as a functional specification?  
[ a ] requirement definition                      [ b ] software specification  
[ c ] SRS document                      [ d ] requirement specification
8. Requirement engineering process has how many stages?  
[ a ] 2                      [ b ] 5                      [ c ] 3                      [ d ] 4
9. Which is not a type of project plan?  
[ a ] staff development plan                      [ b ] validation plan  
[ c ] quality plan                      [ d ] none of the mentioned
10. Which one represents project schedule?  
[ a ] bar chart                      [ b ] activity networks  
[ c ] both a and b                      [ d ] none of the mentioned
11. Which resource sits at the foundation of the resource pyramid?  
[ a ] reusable S/W components                      [ b ] H/W and S/W tools  
[ c ] people                      [ d ] none of the mentioned

12. How many options are there to achieve reliable cost and effort estimation?  
[ a ] 4                      [ b ] 5                      [ c ] 3                      [ d ] 6
13. Cyclomatic complexity is which type of quality metric?  
[ a ] program quality metric                      [ b ] design quality metric  
[ c ] both a and b                      [ d ] none of the mentioned
14. Which one is related to the ability of software to be recovered from the failure?  
[ a ] robustness              [ b ] resiliency              [ c ] reliability              [ d ] reusability
15. Which one is also known as white-box testing?  
[ a ] behavior testing                      [ b ] partition testing  
[ c ] internal operation testing                      [ d ] none of the mentioned

Fill in the blank.

16. \_\_\_\_\_ reduces the number of test cases.
17. \_\_\_\_\_ introduces at least one new set of processing statements or condition.
18. Product attributes, hardware attributes, personnel attributes, and project attributes are \_\_\_\_\_.
19. \_\_\_\_\_ have low risk of modifications.
20. \_\_\_\_\_ is an end-point of software process activity.

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Level : B. Sc.  
Year : IV  
Time : 2 hrs. 30 mins.

Course : COMP 401  
Semester : I  
F. M. : 40

SECTION "B"  
[6Q × 4 = 24 marks]

Attempt *ANY SIX* Questions (**Q. No. 2 is Compulsory**).

1. Define software engineering. Explain fundamental problems of software engineering.
2. With diagram, briefly explain scrum process model.
3. Explain system engineering process.
4. Describe requirement validation and requirement evolution.
5. Discuss on the structure of project plan.
6. What is empirical estimation model? Describe COCOMO model.
7. Why software standards are important? Briefly explain product quality metrics.

SECTION "C"  
[8Q × 2 = 16 marks]

Attempt *ANY TWO* questions (**Q. No. 8 is Compulsory**).

8. Considering Intelligent Transportation System, mention four (4) key requirement definitions and provide their requirement specifications.
9. Explain Black-Box Testing in detail. Discuss on different levels of testing.
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 complete the project.

Task	Duration	Dependencies
T1	8	
T2	15	
T3	15	T1 (M1)
T4	10	
T5	25	T2, T4 (M2)
T6	5	T1, T2 (M3)
T7	20	T1 (M1)
T8	25	T4 (M5)
T9	10	T3, T6 (M4)
T10	15	T5, T7 (M7)
T11	20	T9 (M6)
T12	10	T11 (M8)

