

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2018

Marks Scored:

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

Course : COMP 421  
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date FEB 23 2018

SECTION "A"

[20 Q. × 0.5 = 10 marks]

1. Which of the following view shows that the system is composed of interacting processes at run time?  
 Physical                       Development                       Logical                       Process
2. Which of the following is not included in Architectural design decisions?  
 Type of application                       Distribution of the system  
 Architectural styles                       Testing the system
3. Which view in architectural design shows the key abstractions in the system as objects or object classes?  
 Physical                       Development                       Logical                       Process
4. Which of the following is a type of Architectural Model?  
 Static structural model                       Dynamic process model  
 Distribution model                       All of the mentioned
5. What does a review practice includes?  
 Review team                       Organizational Expectation  
 Review Preparation                       All of the mentioned
6. By whom the project can be represented?  
 System architect                       Designers  
 System stakeholders                       All of the mentioned
7. Which of the following is incorrect?  
 Software Quality cannot be appended late in a project  
 Software Quality can be appended late in a project  
 If the problems are founded early it can be easily corrected  
 If the problems are founded late it cannot be easily corrected
8. Which of the following can be considered as stakeholders?  
 End User                       System Administrator  
 The developer                       All of the mentioned
9. Which of the following style main goal is to achieve portability, modifiability with the ease of parameterization?  
 Independent component architecture                       Layered Styles  
 Heterogeneous styles                       None of the mentioned

10. For which of the architecture Event style is the sub style?  
 Independent component architecture                       Heterogeneous architectures  
 Layered Architecture     None of the mentioned
11. What are the disadvantages of pipe & filters?  
 Interactive applications are difficult to create  
 Performance is poor due several reasons  
 No way for a filter to cooperatively interact to solve a problem  
 All of the mentioned
12. Which of the following must be estimated for performance analysis?  
 Reliability of each component                                       Resource usage of the component  
 All of the mentioned     None of the mentioned
13. A Class consists of which of these abstractions?  
 Set of the objects     Operations  
 Attributes     All of the mentioned
14. An attribute is a data item held by which of the following?  
 Class     Object  
 All of the mentioned     None of the mentioned
15. Use Case descriptions consists of interaction among which of the following?  
 Product     Use case  
 Actor     Product & Actor
16. What are the different interaction diagram notations does UML have?  
 A sequence diagram     A communication diagram  
 An interaction overview diagram     All of the mentioned
17. Which among these are the common notations for deployment diagrams?  
 Artifacts and nodes     Stereotypes  
 Components     All of the mentioned
18. Which of these are types of nodes used in deployment diagram?  
 Device     Execution environment  
 Artifact     Device & execution environment
19. Software architectures can be evaluated using which of these?  
 Scenarios     Prototyping  
 All of the mentioned     None of the mentioned
20. Which UML diagram is used for Object activities interactions?  
 Use Case                       Deployment                       Component                       Activity

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Semester : I  
F. M. : 40

SECTION "B"

[6Q × 5 = 30 marks]

Attempt *ANY SIX* questions:

1. What is Software Architecture? Explain the goal and limitations of Architecture.
2. What is Architecture Design Process? What are the steps of basic architecture design process?
3. Explain about the Architectural Design Process.
4. What is Activity Diagram? Explain about the Activity Diagram with example using activity diagram notations.
5. Explain the main principals of component based design.
6. Explain the Pipe and Filter Architecture?
7. Write short notes on:
  - a. Object
  - b. Class
  - c. Entity

SECTION "C"

[1Q × 10 = 10 marks]

8. **Case (Requirement for Hospital Management System)**

**Hospital Management System** is a large system including several subsystems or modules providing variety of functions. UML use case diagram example below shows actor and use cases for a hospital's reception.

**Purpose:** Describe major services (functionality) provided by a hospital's reception.

**Hospital Reception** subsystem or module supports some of the many job duties of hospital receptionist. Receptionist schedules patient's appointments and admission to the hospital, collects information from patient upon patient's arrival and/or by phone. For the patient that will stay in the hospital ("inpatient") she or he should have a bed allotted in a ward. Receptionists might also receive patient's payments, record them in a database and provide receipts, file insurance claims and medical reports.

**Do the following:**

- a. Identify the Actors and use cases then make Use Case Diagram
- b. Identify the Class and make the Class Diagram
- c. Develop the Sequence Diagram





