**Department of Technology Promotion and Coordination**

**University of Computer Studies**

**Third Year (B.C.Sc)**

**Mid Term Examination**

**CS- 304 (Software Engineering)**

**March, 2016**

**Zone I**

**Answer all questions: Time allowed: 3 hours**

I. Choose the correct answer from the following: **(20 Marks)**

1. Agile methods seem to work best when team members have a relatively high skill level.
2. True
3. False

2. What are prototypes?

1. Prototypes is a working model of part or all of a final product
2. Prototypes does not represent any sort of models
3. Prototype can never consist of full size
4. All of the mentioned

3. In XP, as soon as the work on a task is complete, it is integrated into the whole system.

1. True
2. False

4. \_\_\_\_\_\_\_\_ is an iterative development process where a prototype system is used to explore the requirements and design options.

1. Agile model
2. Spiral model
3. Throw away prototyping
4. Object model

5. \_\_\_\_\_\_\_\_\_ is an independent software unit that can be composed with other components to create a software system.

1. Component
2. Design Pattern
3. Object

6. Component characteristics are standardized, independent, composable, deployable, documented.

1. True
2. False

7. One type of incompatibility that occur the operations on each side of the interface have the same name but their parameter types or the numbers of parameters are different is called \_\_\_\_\_\_\_\_\_.

1. Parameter incompatibility
2. Operation incompatibility
3. all of the mentioned

8. There are \_\_\_\_\_\_\_\_ types of services provided by a component model implementation.

1. two
2. three
3. four
4. five

9. \_\_\_\_\_\_\_\_ are high-level abstraction that document successful design solutions.

1. Design patterns
2. Object patterns
3. Database patterns

10. COTS stands for

1. Commercial Off-The-Shelf systems
2. Commercial Off-The-Shelf states
3. Commercial Off-The-System state
4. None of the mentioned

11. Which frameworks support the development of system infrastructures such as communications, user interfaces, and compilers?

1. Middleware integration frameworks
2. System infrastructure framework
3. Enterprise application frameworks
4. Web application frameworks

12. In \_\_\_\_\_\_\_\_\_ , reusable knowledge is captured in a program generator system that can be programmed by domain experts using either a domain-oriented language or an interactive CASE tool that supports system generation.

1. Generator-based reuse
2. General-based reuse
3. Component-based reuse

13. Architectural design is a creative process where you try to establish a system organization that will satisfy the functional and non-functional requirements.

1. True
2. False

14. \_\_\_\_\_\_\_\_\_\_\_ model that defines the services offered by each sub-system through its public interface.

1. A dynamic process model
2. A static structural model
3. Relationship model
4. An interface model

15. The layered model of an architecture model is sometimes called an abstract machine model.

1. True
2. False

16. The strategies that can be use when decomposing a sub system into module are called \_\_\_\_\_\_\_\_\_\_ .

1. Object-oriented decomposition
2. Function-oriented pipelining
3. Both a and b

17. Which of the following term is best defined by the statement “in a distributed system, several processes may operate at the time on separate computers on the network.”?

1. Concurrency
2. Openness
3. Resource sharing
4. Fault tolerance

18. The simplest model of a distributed system is called \_\_\_\_\_\_\_\_\_\_ , where the software system consists of a number of processes that may execute on separate processors.

1. multiprocessor system
2. peer-to-peer system
3. database system
4. data mining system

19. \_\_\_\_\_\_\_\_\_\_ CORBA services that provide basic distributed computing services such as directories and security management.

1. Vertical
2. Horizontal
3. Fundamental

20. In \_\_\_\_\_\_\_\_\_ model, the server is only responsible for data management.

1. Fat-client
2. Thin-client
3. Two-tier

II. Define the followings: **(15 Marks)**

1. Layered model
2. Architectural design
3. Middleware
4. Fat client model
5. Rapid Application Development
6. Extreme programming
7. Product Line
8. Generator-based reuse
9. Horizontal services
10. Component-based software engineering

III. Write short notes on **ANY THREE** from the followings:

1. Five levels of service in the CASE reference model
2. Three fundamental services that enable communication between web services
3. Two main advantages to adopting an incremental approach to software development
4. Three classes of framework
5. Three types of incompatibility faces in component composition

IV. (a) Viewing a component as a service provider emphasizes two critical characteristics of a reusable component. Explain these characteristics. **(5 Marks)**

(b) Discuss the principles of agile methods. **(10 Marks)**

V. (a) Write down the advantages and disadvantages of a shared repository model.

**(OR)**

Design of client-server architecture must take a number of factors into account when choosing the most appropriate architecture. Explain the situation of using different client-server architecture.

**(10 Marks)**

(b) How do you understand component-based software engineering? Explain the essential differences between component-based software engineering process and the software processes based on original software development.

**(OR)**

What is Rapid Application Development (RAD)? Briefly explain the tools included in RAD environment.

**(10 Marks)**

VI. Give reasons for your answer, suggest an appropriate architectural model/ control model for the following systems.

1. Applications where application processing is provided by off-the-shelf software on the client
2. An internet banking system, the bank’s customer database provides data management services, a web statements, pay bills and the user’s own computer with an Internet browser is the client
3. A television controller that responds to signals from a remote control unit.

**(15 Marks)**