

BITS, PILANI-DUBAI
DUBAI INTERNATIONAL ACADEMIC CITY, DUBAI
II - SEMSTER 2009-10

COURSE	:	BITS C461 SOFTWARE ENGINEERING (ELECTIVE)		
COMPONENT	:	COMPREHENSIVE EXAMINATION	Pages:-1-	
DURATION	:	3 MINS.	Weightage:	40 Marks (40%)
DATE	:	23-5-2010 (SUNDAY)		

1. Draw a class diagram showing the relationship between triangle, polygon, rectangle and point classes. What type of relationship they all have, if a class may reference several instances of another class? How they are linked together, show them in detail in your design. (3 Marks)
2. What do you mean by Software Architecture? What is the use of it in Software development in a large scale? Mention some of them. (4 Marks)
3. What are the uses of Use Cases and Class Diagram in Software Engineering? (3 Marks)
4. What is testing in Software Engineering? What are the different types of testing? Mention the test characteristics? (4 Marks)
5. Draw the context level diagram to represent a book lending library system and also it should reveal the following actions, like library receives details of books, and orders books from one or more book suppliers. (4 Marks)
6. Draw the DFD level 1 diagram representing the software module that is used at the reception for booking the Car for servicing in a BMW Garage Repair workshop. The following are the activities involved in the process of registering the car for servicing in the workshop :
 1. Client should get the appointment, in return the confirmation request from the reception related to the appointment (date, day and time).
 2. Client should produce the appointment details on the date of service to the reception to do the validity check of the appointment.
 3. Technical support if the car requires additional mechanic support is required. (5 Marks)
7. Provide an example of software project that would be amenable to the prototyping model. Be specific. (4 Marks)
8. Discuss the specific goals and Generic goals of project planning. (4 Marks)
9. What are the different types of elements involved in the Analysis model? Discuss each of them in few lines. (4 Marks)
10. What are the component available in the software process framework and also mention the generic process frameworks which are applicable to the vast variety of software projects. (5 Marks)

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Course : BITS C461 SOFTWARE ENGINEERING (ELECTIVE)
Nature of Component : OPEN BOOK
Date : 18-4-2010, Sunday
Duration : 50 Mins
Year : IV Year CS
Weightage (%) : 20% (20 Marks)
No. pages : 2 Pages

Note:- Answer all the questions.

Text Books, Reference books, slides printouts, and hand written Notes are allowed.

1. Give the Use Case diagram for the ATM System performing all possible types of operations (transactions) such as Withdrawal of Cash, Cash Deposit, Checking the validity of the Customer & Other transactions like fund Transfer and enquiry etc. Your Use case diagram should select the appropriate actors, use cases, Association, inclusion, dependency and it must have to be complete design as per the ATM system operations when compared with the existing ATM system available in and around UAE. (4 Marks)

2. Draw the class diagram with relevant classes and its interfaces to provide a solution by applying the design concepts and to overcome the situation that a US citizen is not allowed to deposit US dollar in a Swiss Bank because Swiss Bank don't accept dollars but he can deposit US dollar in any US Bank. Your design must provide the flexibility so that the US Citizen is allowed to deposit US dollar in Swiss Bank and the design diagram must have to be self explanatory. (4 Marks)

3. What do you mean by generalization and specialization in UML and show them in Etisalat Telecommunication media. (4 Marks)
4. Draw the state diagram for a digital watch with two buttons as button1 and button2. These buttons are used for adjusting / correcting / setting of time in the digital watch. The operations are as follows, when the button1 is pressed blinking of hours / blinking of minutes / blinking of seconds takes place and when the button2 pressed for incrementing hours / minutes /seconds. If both the button1 and 2 are pressed together it enters the state of stop blinking. Your state diagram should explicitly show the states, events, and transitions. (4 Marks)
5. Give the Deployment diagram for the following client-server model; each client machine is loaded with the sales module with independent devices / resources like barcode scanner and printer connected to them. The clients are connected to the Server where the required database files are available for processing, the clients nodes and the server are connected via switch (device) through local area network (mention the appropriate network card that is used to have the communication between the clients and server via switch). (4 Marks)

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COURSE	:	BITS C461 SOFTWARE ENGINEERING (ELECTIVE)
NATURE OF COMPONENT	:	CLOSED BOOK
YEAR	:	IV YEAR
DATE & DURATION	:	07-03-2010 & 50 MINS.
WEIGHTAGE (%)	:	25 %
MAX MARKS	:	25 MARKS

1. What are the five generic software process framework activities? (3 Marks)
2. What are the specific goals and generic goals of project planning defined by the CMMI for the Project Management? (4 Marks)
3. Give an example for the waterfall process model and lists the advantages and disadvantages of this model and what will be your suggestion that will substitute the waterfall model for your application considered as an example. (5 Marks)
4. Explain Spiral Process model. What are the benefits achieved through spiral process model when compare with other process models. (4 marks)
5. Whether the statement given is correct or wrong "component-based development model incorporates many of the characteristics of the spiral model". If your answer is yes / no; point out the similarities or state why it is wrong. (4 marks)
6. Explain the seven distinct functions of requirement engineering tasks that support the software developer to transform the customer requirements to operational system. (5 marks)

2. Whether the ISO/OSI protocol stack is an example of the Layered Architecture? If your answer is yes / no, justify it.

3. Whether the following statement is true or false? Justify your answer. The statement is as follows: "If a design model is highly coupled (all design classes collaborate with all other design classes) the system is difficult to implement, to test, and to maintain over time".
4. Differentiate the transform flow and transaction flow mapping approach of information flow with a simple block diagram.

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QUIZ – I

Date: _____

BITS C461 SOFTWARE ENGINEERING (ELECTIVE)

NAME: _____

Id .No.: _____

1. Which are the generic phases of software engineering?
 - a) definition, development, support
 - b) what, how, where
 - c) programming, debugging, maintenance
 - d) analysis, design, testing

2. Which of these is not one of the phase names defined by the Unified Process model for software development Requirement Engineering Tasks?
 - a) Inception phase
 - b) Elaboration phase
 - c) Construction phase
 - d) Validation phase

3. The linear sequential model of software engineering development is also known as the
 - a) classical life cycle model
 - b) fountain model
 - c) spiral model
 - d) chaos model

4. A stakeholder is anyone who will purchase the completed software system under development
 - a) True
 - b) False

5. Which of following is not a UML diagram used creating a system analysis model?
 - a) activity diagram
 - b) class diagram
 - c) dataflow diagram
 - d) state diagram

6. UML notations that can be used to model the hardware and software elements of a system are
- a) Activity diagrams
 - b) Class diagrams
 - c) Deployment diagrams
 - d) Use-case diagrams
 - e) a, b, and c
-

7. Three things that make requirements elicitation difficult are problems of
- a) budgeting
 - b) scope
 - c) understanding
 - d) volatility
 - e) b, c and d
-

8. The best way to conduct a requirements validation review is to
- a) examine the system model for errors
 - b) have the customer look over the requirements
 - c) send them to the design team and see if they have any concerns
 - d) use a checklist of questions to examine each requirement
-

9. Which of the following is not one of the requirement classifications used in Quality Function Deployment (QFD)?
- a) exciting
 - b) expected
 - c) mandatory
 - d) normal
-

10. The prototyping model of software development is
- a) a reasonable approach when requirement are well defined
 - b) a useful approach when a customer cannot define requirement clearly
 - c) the best approach to use for projects with large development teams
 - d) a risky model that rarely produces a meaningful product
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11. The component based development model is
- a) only appropriate for component hardware design
 - b) not able to support the development of reusable layout
 - c) dependent on object technologies for support
 - d) not cost-effective by known quantifiable software metrics

12. Which of the following provides useful measure of software quality?

- a) correctness, performance, integrity, usability
- b) reliability, maintainability, integrity, sales
- c) correctness, maintainability, size, satisfaction
- d) correctness, maintainability, integrity, usability

13. The DFD

- a) depicts relationship between data objects
- b) depicts functions that transforms the data flow
- c) specified major logical decision as they occur
- d) indicates systems reactions to external events

14. The state transition diagram

- a) depicts relationship between data objects
- b) depicts functions that transforms the data flow
- c) indicates how data are transformed by the system
- d) indicates system reaction to external events

15. Which of the following are tasks in the generic task set for construction?

- a) Build a software component
- b) Create a user interface
- c) Unit test the component
- d) Assess the quality of the component
- e) Both a and c

16. The rapid application development model is

- a) Another name for component-based development
- b) A useful approach when a customer cannot define requirements clearly
- c) A high speed adaptation of the linear sequential model
- d) All of the above.