ROLL No:..

Thapar Institute of Engineering and Technology, Patiala
Computer Science and Engineering Department

BE Third Year- CE
Auxiliary Exam August 12, 2019
Time: 3 Hours

Course Code: UCS 503
Course Name: Software Engineering
Marks : 100

Name of Faculty: Ms. Ashima Singh

NOTE: BE PRECISE WHILE WRITING. DO THE QUESTIONS SEQUENTIALLY AND ALL PARTS OF QUESTIONS TOGETHER AT ONE PLACE. DO WRITE GROUP: COE, CML or CAG

Q1.	a. List and Discuss any five basic design principles for component based development.	(10)
	b. Compare and contrast the following giving suitable example i. Functional Cohesion and Procedural Cohesion ii. Content Coupling and Global Coupling	(10)
Q2.	a. What are Configuration Items? Discuss Software Configuration Management Process in detail.	(10)
	b. Discuss various approaches for integration testing while highlighting the use of Drivers and Stubs. Explain with suitable example.	(10)
Q3.	The Online Bakery System allows both Customers and Administrators to access it as separate users with different menus and functions in both cases.	
	Existing customers are required to log in through the login UI, and upon being logged in, they are remembered as a User. New customers are able to register for a new account at the signup UI. Once the customer is logged in, they will be directed to the customer user interface (UI) where they can choose to order a default cake or customised cake. After the customer has decided on the cakes of choice, they can then be added to a cart. From this cart, the customer is able to choose between two payment methods, either by credit card or by eNets, and they will be directed to a payment UI which is either a credit card UI or eNETs UI. Once the payment is successful, customers will then be able to choose to play between two games, either Treasure Chest or Cake world of the games award customers with discount for future visits.	
	Administrator once logged in, will be redirected to an admin UI where they can choose to view the various tables of the database, categorized into users, inventory and orders. Bakery administrator need to be able to place/remove products from orders through smart phone. In each database, administrators can then perform various functions like add, edit or delete entries. Administrators are also able to create a transaction log using a transaction log creator. Clients should be able to report how many items were received. All orders on particular date should be visible in same place in separate tab so driver and bakers know what is ordered for a particular date and by whom without need to go in to each separate client.	
	a. Identify and list perspective classes.	(4)
	b. Draw the Use Case Diagram.	(8)
		PTO

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c.	Draw the Sequence Diagram.	(8)
d.	Write two User Stories for the given case.	(10)
e.	Write Test cases for the given case.	(10)

Q4.

a. Consider the program given below and Calculate **CYCLOMATIC COMPLEXITY** after drawing a suitable **flow graph.**

(10)

```
Enter three sides of a triangle.
Read a, b and c
If(a<b+c)AND(b<a+c)AND(c<a+b)
Then is_a_triangle=TRUE
Else is_a_triangle=FALSE;
IF is_a_triangle
Then
If(a=b)XOR(a=c)XOR(b=c) AND NOT ((a=b)AND(a=c))
Then print "Triangle is Isosceles"
If(a=b)AND(b=c)
Then print "Triangle is Equilateral"
If(a<>b)AND (a<>c) AND(b<>c)
Then print "Triangle is scalene"
Else
Print "Not a triangle"
```

Q5.

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a. Consider a project with the following parameters and Compute the function point value for a project with the following information domain characteristics.

(i) External Inputs:
      (a) 11 with low complexity
      (b) 16 with average complexity
      (c) 18 with high complexity
	(ii) External Outputs:
	      (a) 6 with low complexity
	      (b) 13 with high complexity

(iii) External Inquiries:
      (a) 4 with low complexity
      (b) 2 with average complexity
      (c) 2 high complexity
	(iv) Internal logical files:
	      (a) 2 with average complexity
	      (b) 1 with high complexity

(v) External Interface files: (a) 9 with low complexity	

In addition to above, system requires
    i. Significant data communication
    ii. Performance is very critical
    iii. Designed code may be moderately reusable
    iv Significant distributed processing functions

Assume all other complexity adjustment values for rest of the Factors(Fᵢ)to be moderate.

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