

Roll No. ....

**23066**

**M.Tech. 1st Semester (Computer  
Engg.) Examination–May, 2014**

**COMPUTER SYSTEM SOFTWARE**

**Paper MTCE-601-A**

**Time : 3 hours**

**Max. Marks : 100**

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Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

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**Note :** Attempt any **five** questions.

1. (a) Why do we need principles of class design? Explain dependency inversion principle with example. 10

(b) Explain T-approach of object oriented software development. 10

2. (a) Can you write an assembler language program without using 'USING'

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instruction ? How ? What are the limitations ? 8

(b) What feature of assembly language is required to build a two-pass assembler ? 6

(c) What additional features would a three-pass assembler afford the user ? 6

3. (a) Give an example of each of the following types of address constants : 10

(i) Simple relocatable

(ii) Complex relocatable

(b) Describe the input and output of the macro processor. How dependent is it upon the assembler source code format ?

10

4. (a) Describe a generic class that provides the following services on different data types *i.e.* int, float, char etc. : 15

(i) Adds an item on the rear end of the queue.

(ii) Deletes an item from the front end of a queue.

(iii) Displays the contents of a queue.

(b) "Class is open as well as closed".  
Comment. 5

5. (a) Design a use of supermarket scenario. 8

(b) Draw a sequence diagram of a phonline connection activities taking place between a caller and a listener starting from the caller lifts the phone till the call is over and the phone is put down. Choose appropriate states in between. 12

6. Write short note on any **two** of the following : 20

(a) Flow chart of working of a macro processor.

(b) Interface aggregation principle

(c) Deployment diagram

(d) Containership

7. (a) Prepare-class diagram for a library book checkout system that shows the late charges for an overdue book as a derived attribute. 10

(b) Prepare an activity diagram for computing a restaurant bill. There should be a charge for each delivered item. The total amount should be subject to tax and a service charge of 18% for group of six or more. For smaller groups, there should be a blank entry for a gratuity according to the customer's discretion. Any coupons or gift certificates submitted by the customer should be subtracted. 10

8. (a) Explain Liskov's substitution principle. 10

(b) Explain package cohesion principle. 10