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06CS71

Seventh Semester B.E. Degree Examination, December 2012
Object Oriented Modeling and Design (OOMD)

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. What is object orientation? Explain its aspects with an example. **(06 Marks)**
b. What is model? What are its advantages? Briefly discuss about three models. **(08 Marks)**
c. What is generalization? Briefly discuss the generalization of equipments. **(06 Marks)**

2 a. Define the following terms, with an example :
i) Enumerations ii) Association ends iii) Aggregation iv) Abstract classes. **(08 Marks)**
b. With respect to multiple inheritance, briefly discuss about
i) Multiple classification ii) Workarounds. **(06 Marks)**
c. What do you mean by states and events? Draw the state diagram for a telephone line system. **(06 Marks)**

3 a. What is concurrency? Explain the aggregation concurrency, with an example. **(06 Marks)**
b. What are sequence models? Draw the sequence model for on – line stock broker system. **(06 Marks)**
c. Briefly discuss the usecase relationships and draw the usecase diagram of stock brokerage system. **(08 Marks)**

4 a. Briefly discuss the software development stages. **(08 Marks)**
b. Identify the classes for ATM bank system. What criteria would you take into consideration to select right classes? Explain. **(08Marks)**
c. List the steps to construct domain state model. **(04 Marks)**

PART – B

5 a. With a neat activity diagram, explain the card verification activity of ATM bank system. **(06 Marks)**
b. Define the following terms : i) Libraries ii) Frameworks iii) Patterns. **(06 Marks)**
c. Explain the steps in designing a complier by using batch transformation. **(08 Marks)**

6 a. Briefly discuss the design optimization and explain its tasks, with an example. **(08 Marks)**
b. List and explain the steps involved in organizing of a class design. **(06 Marks)**
c. Differentiate between forward engineering and reverse engineering. **(06 Marks)**

7 a. What is a pattern? Explain the model – view controller design for software architecture, with OMT diagram. **(06 Marks)**
b. Explain the client – dispatcher – design pattern. **(08 Marks)**
c. List and explain different pattern categories. **(06 Marks)**

8 a. Explain the command processor design pattern. **(08 Marks)**
b. What are idioms and styles? Explain with the help of an example, a style guide idiom. **(06 Marks)**
c. Explain the publisher – subscriber design pattern. **(06 Marks)**

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06CS/IS72

Seventh Semester B.E. Degree Examination, December 2012
Software Architecture

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART - A

1 a. Explain in detail the building of Architecture Business cycle by identifying the factors of influence. **(10 Marks)**

b. Briefly explain, what does software architecture constitute. **(05 Marks)**

c. Describe the Architectural structure of a system. **(05 Marks)**

2 a. Enlist the different Architectural styles and discuss in brief Event – based, Implicit Invocation. **(06 Marks)**

b. Explain the software paradigm for process control. **(04 Marks)**

c. State the problem of KWIC. Propose Abstract Data types and Implicit Invocation styles to implement solutions for the same. **(10 Marks)**

3 a. Explain quality attribute scenarios. **(06 Marks)**

b. Distinguish between availability and modifiability scenarios. **(04 Marks)**

c. Explain the following with respect to tactics :
i) Fault prevention ii) Defer binding time iii) Resource arbitration
iv) Internal monitoring v) Run time tactics. **(10 Marks)**

4 a. Explain layers architectures pattern, with sketches and CRC cards. **(06 Marks)**

b. List the components of a pipe and filter architecture pattern and depicit the dynamics behavoiur of it. **(08 Marks)**

c. Explain the forces that influence solution to problem based on black board pattern. **(06 Marks)**

PART - B

5 a. Describe the structure of Broker architectural pattern with their respective CRC cards. **(08 Marks)**

b. Explain the dynamic behaviour of MVC pattern, with sketches. **(08 Marks)**

c. List the benefits of PVC pattern. **(04 Marks)**

6 a. Enumerate the implementation of a Micro Kernel pattern. **(10 Marks)**

b. Explain the reflection architectural pattern and its known uses. **(10 Marks)**

7 a. Enlist the benefits of whole – part pattern. **(04 Marks)**

b. Discuss the structure, dynamics and implementation of Master – Slave pattern. **(10 Marks)**

c. List the known uses and liabilities of proxy pattern. **(06 Marks)**

8 a. Explain ADD and its steps. **(07 Marks)**

b. What are views? How they serve the architecture, with examples. **(06 Marks)**

c. List the steps in documenting a view for architecture. **(07 Marks)**

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06CS73

Seventh Semester B.E. Degree Examination, December 2012

Programming the Web

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. What is hyper text? Explain HTTP phases. Mention various methods and status codes of HTTP. **(10 Marks)**

b. Give the standard structure of XHTML document. How line breaks, headings and fonts are handled in XHTML? **(10 Marks)**

2 a. How lists are handled in XHTML? Design an XHTML code for illustrating nested lists. **(10 Marks)**

b. Design an XHTML code for constructing a sample class timetable to illustrate table handling. **(10 Marks)**

3 a. What are the different levels of style sheets? Give an example code for each. **(08 Marks)**

b. What are the different selector forms provided in CSS? Illustrate the use of each with suitable example. **(12 Marks)**

4 a. What are uses of Java Script? Are OOP concepts incorporated in Java Script? How objects are handled in it? **(08 Marks)**

b. Which are the methods used for accepting inputs from the keyboard and for displaying results on the screen? Write a Java Script for accepting the user name and display it on the browser window. **(12 Marks)**

PART – B

5 a. What is an event? List the most commonly used events and their tag attributes. **(10 Marks)**

b. Briefly discuss the event handling from body elements and button elements in Java Script. **(10 Marks)**

6 a. How positioning and moving of elements are done in dynamic XHTML? **(08 Marks)**

b. How stacking of elements done in Java Script/XHTML? Write a program to illustrate dynamic stacking of images. **(08 Marks)**

c. What are the standard values for visibility property? How are they used in dynamic XHTML? **(04 Marks)**

7 a. What is a namespace? What is its use in XML? **(04 Marks)**

b. How elements and attributes are declared in a DTD? Give a sample DTD for defining on airplane. **(10 Marks)**

c. Explain the transformation process by an XSLT processor with a flow diagram. **(06 Marks)**

8 a. What are the three categories of Perl variables How are they handled? Give examples. **(09 Marks)**

b. How files are handled in Perl? List File Use Specifications and their meaning. **(05 Marks)**

c. What is a query string? How is it transmitted to the server with the GET and POST methods? **(06 Marks)**

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06CS74

Seventh Semester B.E. Degree Examination, December 2012
Embedded Computing Systems

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Give the characteristics and constraints of embedded system. **(04 Marks)**

b. Define design metrics in an embedded system. What are the different computing design metrics? What are the challenges faced in designing an embedded system. **(10 Marks)**

c. Describe the software tools used for designing an embedded system. **(06 Marks)**

2 a. With neat sketch, explain synchronous serial input and synchronous serial output operation. **(10 Marks)**

b. Briefly explain the skills required for an embedded system designer. **(06 Marks)**

c. Write a note on SDIO (secure digital input output). **(04 Marks)**

3 a. Describe: i) Timing device; ii) Counting device; iii) Timer cum counting device. **(06 Marks)**

b. Explain watch dog timer with any one its applications. **(06 Marks)**

c. With neat sketch, explain the control bit format in I^2C bus protocol. **(08 Marks)**

4 a. What is interrupt vector? Explain various mechanism of interrupt vector with suitable examples. **(10 Marks)**

b. Differentiate between device driver functions and ISR functions. **(05 Marks)**

c. Explain the role of device drivers in interaction with device hardware with suitable example. **(05 Marks)**

PART – B

5 a. Explain the modeling of a multi-processor system. **(07 Marks)**

b. Distinguish between function, ISR and Task. **(06 Marks)**

c. Define process and tasks. Explain the tasks with their states. **(07 Marks)**

6 a. Describe any four RTOS timer functions and the actions on calling these functions. **(04 Marks)**

b. Explain file system organization and implementation in an OS for an embedded system. **(08 Marks)**

c. Explain process creation and management of created process. **(08 Marks)**

7 a. Briefly explain the design principles when using an RTOS to design an embedded system. **(10 Marks)**

b. List any four common RTOS task scheduling models. **(04 Marks)**

c. Describe fixed real time scheduling model with an example. **(06 Marks)**

8 a. What are the features of integrated development environment (IDE)? Explain. **(07 Marks)**

b. Describe the platform dependency issues and the need for appropriate OS-hardware interface functions. **(08 Marks)**

c. Discuss the limitations of simulation with appropriate illustration. **(05 Marks)**

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06IS74

Seventh Semester B.E. Degree Examination, December 2012
Data Mining

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. What is Data Mining (DM)? Explain the process of knowledge discovery in databases. **(06 Marks)**

b. Discuss the challenges that motivate the development of DM. **(05 Marks)**

c. Discuss whether or not each of the following activities is a DM task :
   i) Sorting a student database based on id.
   ii) Predicting the outcomes of tossing a pair of dice.
   iii) Monitoring the heart rate of patient abnormalities.
   iv) Extracting the frequencies of a sound ware. **(02 Marks)**

d. Explain different data mining tasks. **(07 Marks)**

2 a. Explain the different attribute types under DM. **(08 Marks)**

b. List different preprocessing steps used in DM. **(07 Marks)**

c. Describe in brief the two distance formulas widely used to find dissimilarity between data objects. **(05 Marks)**

3 a. Consider the following dataset for a binary classification :

Tid	Refund	Marital status	Taxable income	Class
1	Yes	Single	125 k	No
2	No	Married	100 k	No
3	No	Single	70 k	No
4	Yes	Married	120 k	No
5	No	Divorced	95 k	Yes
6	No	Married	60 k	No
7	Yes	Divorced	220 k	No
8	No	Single	85 k	Yes
9	No	Married	75 k	No
10	No	Single	90 k	Yes

   i) Calculate the information gain for each attribute.
   ii) Draw decision tree by selecting the best split. **(10 Marks)**

b. Explain different metrics used in Rule evaluation. **(05 Marks)**

c. Describe K – NN classification. **(05 Marks)**

4 a. Define Market Basket Analysis. **(02 Marks)**

b. Explain in detail frequent itemset generation and rule generation with reference to Apriori along with a example. **(10 Marks)**

c. Describe in detail alternative methods for generating frequent itemsets. **(08 Marks)**

PART – B

5 a. With an example, illustrate how FP – growth algorithm is better compared to Apriori. **(10 Marks)**

b. Explain the measures used for evaluating association patterns. **(05 Marks)**

c. Define sequence and subsequence with example for each. **(05 Marks)**

6 a. What is clustering? Describe the different types of clustering. **(08 Marks)**

b. Explain K – mean algorithm. **(05 Marks)**

c. Differentiate Agglomerative and divisive clustering. Explain the basic Agglomerative hierarchical clustering algorithm. **(07 Marks)**

7 a. Write short notes on :
i) Spatial Data mining ii) Text mining iii) Outlier analysis. **(15 Marks)**

b. Explain Description based retrieval and content based retrieval for similarity searching in multimedia data. **(05 Marks)**

8 a. Describe any six features that help to choose a Data mining system. **(12 Marks)**

b. Explain any two data mining applications. **(08 Marks)**

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06CS/IS753

Seventh Semester B.E. Degree Examination, January 2013
Java and J2EE

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. List and explain the java buzzwords. **(10 Marks)**
b. How arrays defined and used in Java? **(05 Marks)**
c. Discuss the labeled break and continue statements. **(05 Marks)**

2 a. What is meant by instance variable hiding? How to overcome it? **(04 Marks)**
b. WAP in JAVA to implement a stack that can hold 10 integer values. **(06 Marks)**
c. What is an exception? Give an example for nested try statements. **(06 Marks)**
d. List Applet initialization and termination methods. Write a Java Applet that sets the background color to cyan and foreground color to red and outputs a string message "A simple Applet". **(04 Marks)**

3 a. What is multithreading? Write a program to create multiple threads in JAVA. **(10 Marks)**
b. Discuss the significance of synchronization in Java. **(06 Marks)**
c. Briefly explain the role of:
i) ActionEvent class ii) AdjustmentEvent class. **(04 Marks)**

4 a. Differentiate between AWT and swings. **(05 Marks)**
b. Explain the MVC architecture of swings. **(05 Marks)**
c. Describe the different types of swing buttons. **(10 Marks)**

PART – B

5 a. Explain J2EE multitier architecture with a neat diagram. **(05 Marks)**
b. Describe the various steps of JDBC process with code snippets. **(10 Marks)**
c. What is meant by scrollable result set? Explain. **(05 Marks)**

6 a. Write a program using servlet which contains HTML page to accept username and display greeting message as "Hello username, How are you?" in the browser window. **(08 Marks)**
b. Briefly explain the following:
i) Servlet interface ii) Generic servlet class iii) Cookie class **(06 Marks)**
c. Illustrate the use of session information in servlets. **(06 Marks)**

7 a. Define JSP. Explain the two types of control statements used in JSP by taking suitable examples. **(10 Marks)**
b. Write a JSP program to create and read a cookie called "EMPID" that has a value of AN2356. **(05 Marks)**
c. What is RMI? Briefly explain the working of RMI in JAVA. **(05 Marks)**

8 a. Describe the concept of deployment descriptors. **(08 Marks)**
b. Explain the functions of EJB transaction attributes. **(08 Marks)**
c. Briefly discuss the significance of session Java Bean. **(04 Marks)**

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06CS/IS761

Seventh Semester B.E. Degree Examination, January 2013

C# Programming and .NET

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Explain the following common type system:
i) Class ii) Structure iii) Delegate iv) Members **(08 Marks)**

b. Briefly explain the core features of .NET. **(06 Marks)**

c. Briefly explain the features of C# language. **(06 Marks)**

2 a. Explain the following output options of the C# compiler csc.exe:
i) /out ii) /target : exe iii) /target : library iv) /target : module
v) /target : winexe vi) /doc vii) @ viii) /main **(08 Marks)**

b. What is response file in C#? Why it is used? Create a response file with a name TestApp.rsp, and show how it is used to build applications. **(04 Marks)**

c. Explain any eight C# preprocessor directives. **(04 Marks)**

d. Write a C# program to display the current .NET development machine details. **(04 Marks)**

3 a. Mention the different form of main methods in C# and explain why its type signature contains public and static keywords. **(04 Marks)**

b. Write a C# program to accept three numbers from the command line, and print the biggest. **(02 Marks)**

c. Explain the method parameter modifiers in C# with code snippets. **(12 Marks)**

d. Explain the following methods of System.Object:
i) Equals ( ) ii) Finalize ( ) **(02 Marks)**

4 a. List the differences between value type and reference type in C#. **(06 Marks)**

b. Explain the two techniques to preserve the integrity of state data in C#, illustrate with code snippets. **(06 Marks)**

c. Explain the two forms of relationships in C# inheritance with a real world examples. **(04 Marks)**

d. In C# how you can determine whether a given base class reference is actually referring to a derived type or not? Illustrate with code snippets. **(04 Marks)**

PART – B

5 a. Define bugs, errors and exceptions with examples. **(03 Marks)**

b. Name the two descendent classes of System.Exception class and define their roles. **(03 Marks)**

c. Mention the rule of thumb when you are constructing multiple catch blocks for a single try block, illustrate with code snippets. **(04 Marks)**

d. Mention the rules of .NET memory management, and explain in detail how CLR performs a garbage collection. **(10 Marks)**

6 a. How shallow copy and deep copy of an object is achieved in C#? Write a programs in C# to demonstrate both. **(05 Marks)**

b. List the member functions of queue and stack classes. Write separate programs to demonstrate both. **(07 Marks)**

c. List the interfaces of System.Collections namespace and briefly explain their roles. **(08 Marks)**

7 a. Briefly explain the following:

i) Callback interfaces

ii) C# delegate keyword

iii) C# event keyword **(05 Marks)**

b. Illustrate the use of callback interfaces with a C# program. **(10 Marks)**

c. Write a program in C# to illustrate how delegate object is used to call methods dynamically. **(05 Marks)**

8 a. Briefly explain the benefits of .NET assemblies. **(05 Marks)**

b. Compare private and shared assemblies. **(03 Marks)**

c. Mention the major elements of .NET binaries, and explain each. **(10 Marks)**

d. Briefly explain the types of views of an assembly. **(02 Marks)**

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06IS765

Seventh Semester B.E. Degree Examination, January 2013
User Interface Design

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Briefly explain the goals of system engineering. **(04 Marks)**
b. Describe four prime sources for motivation for human factors in design, brief each one. **(06 Marks)**
c. Explain principles of design that are applicable in most interactive system based on principle – Z. **(10 Marks)**

2 a. With suitable diagram, explain three pillars of user interface design. **(10 Marks)**
b. Briefly explain: i) Expert reviews; ii) Usability testing and laboratories. **(10 Marks)**

3 a. Describe interface-building tools. Explain briefly the features of user interface building tools. **(10 Marks)**
b. Define direct-manipulation system. List the examples of direct-manipulation, brief any three of them. **(10 Marks)**

4 a. Explain three approaches used for Fart movement through Menus. **(10 Marks)**
b. List the strategies for command organization brief each of them. **(05 Marks)**
c. Briefly explain Benefits of structure. **(05 Marks)**

PART – B

5 a. Explain direct and indirect pointing devices. Give suitable examples. **(10 Marks)**
b. Briefly explain: i) Speech generation; ii) Display technologies. **(10 Marks)**

6 a. Explain non-anthropomorphic design. **(06 Marks)**
b. List the guidelines, potential benefits and dangers of using color coding. **(10 Marks)**
c. List forms of paper user manual and online materials. **(04 Marks)**

7 a. Explain co-ordination by tightly coupled windows. **(10 Marks)**
b. Write a note on : i) on-line facilities; ii) elastic windows. **(10 Marks)**

8 a. Identify the categories of web sites. Briefly explain each category. **(10 Marks)**
b. How OAI model encourages designers of web sites? Explain with suitable example. **(10 Marks)**

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