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06CS71

**Seventh Semester B.E. Degree Examination, June/July 2011**  
**Object Oriented Modeling and Design**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. What is OO development? Explain OO methodology and what are OO themes? (10 Marks)  
b. What is modeling concept? Explain. Write class model of windowing system. (10 Marks)
- 2 a. Explain associations and aggregation, with examples. (10 Marks)  
b. Explain state diagram and write state model for telephone line, with activities. (10 Marks)
- 3 a. Explain nested states and nested state diagrams, with example. (10 Marks)  
b. Explain use case and sequence model, with example. (10 Marks)
- 4 a. Explain process overview and system conception. (10 Marks)  
b. Describe domain analysis, with an example of ATM. (10 Marks)

**PART – B**

- 5 a. Describe application analysis, with an example of ATM. (10 Marks)  
b. What is system design? What are the steps of a system design? Explain in detail. (10 Marks)
- 6 a. Explain class design. What are the steps of class design? Explain with an example ATM. (10 Marks)  
b. Explain implementation modeling in detail. (10 Marks)
- 7 a. Explain communication patterns. (10 Marks)  
b. Explain management patterns. (10 Marks)
- 8 Write a note on :
  - a. Unified Modeling Language (UML).
  - b. Procedural sequence models.
  - c. Legacy systems.
  - d. Idioms. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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**Seventh Semester B.E. Degree Examination, June/July 2011**  
**Software Architecture**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting atleast TWO questions from Part – A and Part - B.**

**PART - A**

- 1 a. With the help of a neat block diagram of ABC (Architecture Business Cycle), explain in detail the different activities which are involved in creating a software architecture. (10 Marks)
- b. Enumerate and explain in detail the different groups software architecture structures are categorized into, with the help of appropriate pictorial descriptions. (10 Marks)
- 2 a. Discuss the importance and advantages of the following architectural styles with reference to an appropriate application area. (08 Marks)
- b. List out the design considerations for mobile robotics case study. With the help of the design considerations, evaluate the pros and cons of the layered architecture and implicit invocation architecture for mobile robots. (12 Marks)
- 3 a. With the help of appropriate diagrams, explain the availability scenario and testability scenario in detail. (12 Marks)
- b. Briefly discuss the various types of dependencies that one module can have on another which forms the basis for prevention of ripple effect. (08 Marks)
- 4 a. Discuss the 3 – part schema which underlies the layers Architectural patterns, with reference to networking protocols. (14 Marks)
- b. Briefly explain the benefits offered by the pipes and filters pattern. (06 Marks)

**PART - B**

- 5 a. Give detailed explanation on the different steps involved in the implementation of the broken pattern. (15 Marks)
- b. Propose the description of a scenario that depicts the dynamic behaviour of MVC in detail. Support the description with appropriate pictorial representation. (05 Marks)
- 6 a. Discuss on the benefits and liabilities offered by Microkernel pattern. (10 Marks)
- b. Give detailed explanation on the different known applications offered by the reflection pattern. (10 Marks)
- 7 a. Enumerate with explanation the different steps, which constitute the implementation of the whole part structure for a CAD system for 2D modeling. (14 Marks)
- b. Briefly comment on the different steps carried out to realize the implementation of the proxy pattern. (06 Marks)
- 8 a. Briefly explain the different steps performed while designing an architecture using the ADD method. (10 Marks)
- b. Write short notes on : i) Forming team structures ii) Documenting across views  
iii) Documenting interfaces. (10 Marks)

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06CS73

**Seventh Semester B.E. Degree Examination, June/July 2011**  
**Programming the Web**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting atleast TWO questions each from Part – A and Part - B.**

**PART - A**

- 1
  - a. Explain HTTP. (05 Marks)
  - b. Explain Web servers operation and general server characteristics. (05 Marks)
  - c. Explain any two web programmer's tools used in web programming. (10 Marks)
- 2
  - a. What tag and attribute are used to define a link? Discuss about it. (04 Marks)
  - b. Explain all controls that are created with the <input> tag with examples, which are used for text collection. (08 Marks)
  - c. Explain the XHTML tags used for lists in documents. (08 Marks)
- 3
  - a. What is the purpose of external level style sheet? Compare it with the other two levels. Write the format of external level style sheet. (04 Marks)
  - b. Explain all selector forms. (06 Marks)
  - c. Explain <span> and <div> tags. (05 Marks)
  - d. Write a note on conflict resolution. (05 Marks)
- 4
  - a. Describe three major differences between Java and Java script. (03 Marks)
  - b. Explain Java Script Array methods with examples. (07 Marks)
  - c. Explain screen output and keyboard input. (10 Marks)

**PART - B**

- 5
  - a. Discuss the different approaches of XHTML element access in Javascript. (06 Marks)
  - b. Explain, with an example, handling events from body elements using onload attribute. (04 Marks)
  - c. Explain event handler connection for DOM2 event model. (10 Marks)
- 6
  - a. Describe all the differences between the three possible values of the position property. (07 Marks)
  - b. Explain element visibility. (03 Marks)
  - c. With an example of XHTML doc with java script, explain dynamic content. (10 Marks)
- 7
  - a. What is the purpose of DTD? What are four possible keywords in DTD declaration? Write their format. (05 Marks)
  - b. What is the purpose of character data section? Explain with an example. (05 Marks)
  - c. Explain the two categories of user defined XML schema data types. (04 Marks)
  - d. Mention the advantages of XML schema over DTD's. (06 Marks)
- 8
  - a. Explain the string functions, its parameters and its actions in perl. (06 Marks)
  - b. Explain common gateway interface and its linkage. (04 Marks)
  - c. Explain the fundamentals of arrays in perl. (05 Marks)
  - d. Write a simple perl program with use of arrays to read the names, convert them to upper case letters and the array to be sorted and displayed. (05 Marks)

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**Seventh Semester B.E. Degree Examination, June/July 2011**  
**Embedded Computing Systems**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Define an embedded system. What are its main components? Classify the embedded systems. (08 Marks)
- b. A 10-bit ADC has reference voltages  $V_{ref-} = -1.024V$  and  $V_{ref+} = 1.023V$ . What will be the output when inputs are i)  $-0.256V$ , ii)  $0.512V$ , iii)  $2.047V$ . What will be the output for the above inputs when  $V_{ref-} = -1.024V$  and  $V_{ref+} = +2.047V$ ? (12 Marks)
- 2 a. List and explain any eight design metrics, used in embedded system. (08 Marks)
- b. Describe how the communication takes place between COM port and UART serial port by using handshaking signals. (06 Marks)
- c. How do you interface LCD controller through a parallel port? (06 Marks)
- 3 a. Describe the format of SDA bits in a  $I^2C$  bus protocol along with its signals. (10 Marks)
- b. With a neat diagram, explain the Bluetooth protocol. (06 Marks)
- c. A 16-bit counter is getting input from an internal clock of 12 MHz. There is a prescaling unit, which prescales by a factor of 16. What is the time interval at which overflow interrupt occurs? (04 Marks)
- 4 a. Discuss the classification of interrupt sources. (06 Marks)
- b. Write a note on the Linux device drivers. (08 Marks)
- c. What is the use of interrupt vector table? Explain how it is used in 8051 in case of short code ISR. (06 Marks)

**PART – B**

- 5 a. Explain SDFG model. How do you unfold SDFGs into HSDFGs and HSDFGs into APEGs? (10 Marks)
- b. Describe the different states in FSM model for a mobile key '5' of  $T_q$  keypad. (10 Marks)
- 6 a. Distinguish between ISRs and Tasks. (10 Marks)
- b. Explain the user and supervisory mode structure in OS. (04 Marks)
- c. What are the command functions, used in the device management? (06 Marks)
- 7 a. Discuss the round robin time scheduling, with its programming model and the graph for counter assignment (12 Marks)
- b. Which are the OS security issues? List the important security functions. (08 Marks)
- 8 a. Explain the various software tools, used in the embedded systems? (08 Marks)
- b. What is a target system? How does it differ from final embedded system? (06 Marks)
- c. How do you perform testing on the host machine? (06 Marks)

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**Seventh Semester B.E. Degree Examination, June/July 2011**  
**Data Mining**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. What is data mining? List the four core data mining tasks. (05 Marks)  
 b. Explain the knowledge discovery in databases (KDD) with neat diagram. (05 Marks)  
 c. For the following vectors, x and y, calculate the cosine, correlation, Euclidian and Jaccard similarity :  $x = (0, 1, 0, 1)$ ,  $y = (1, 0, 1, 0)$ . (10 Marks)
- 2 a. List all the data preprocessing techniques and in short explain any five. (10 Marks)  
 b. Consider a training set that contains 60 positive examples and 100 negative examples. For each of the following candidate rules,  
 Rule  $R_1$  : Covers 50 positive examples and 5 negative examples,  
 Rule  $R_2$  : Covers 2 positive examples and no negative examples,  
 determine which is the best and worst candidate rule according to, i) Rule accuracy  
 ii) FOIL's information gain iii) The likelihood ratio statistic. (10 Marks)
- 3 a. Explain in detail, the challenges that motivated the development of data mining. (06 Marks)  
 b. What is sampling? Explain simple random sampling v/s stratified sampling v/s progressive sampling. (10 Marks)  
 c. What is association analysis? Explain in brief, with an example. (04 Marks)
- 4 a. Explain DB scan algorithm with its time and space complexity. (10 Marks)  
 b. For the following transaction data, construct the FP tree with explanation. (10 Marks)

TID	1	2	3	4	5	6	7	8	9	10
Items	{a,b}	{b,c,d}	{a,c,d,e}	{a,d,e}	{a,b,c}	{a,b,c,d}	{a}	{a,b,c}	{a,b,d}	{b,c,e}

**PART – B**

- 5 a. Explain the following ordered data with examples,  
 i) Sequential data ii) Sequence data iii) Time sequence data iv) Spatial data (08 Marks)  
 b. What is a priori principle? Explain (show) its itemset lattice. (08 Marks)  
 c. Explain basic K-means algorithm. (04 Marks)
- 6 a. What is cluster analysis? Explain different types of clustering in detail. (10 Marks)  
 b. List and explain any five features used to assess the data mining systems. (05 Marks)  
 c. Name any five commercial data mining systems. (05 Marks)
- 7 a. Explain text mining approaches and text indexing techniques in brief. (10 Marks)  
 b. Explain the social impact of data mining. (10 Marks)
- 8 Write a short note on the following:  
 a. Curse of dimensionality. (05 Marks)  
 b. Three standard approaches to feature selection. (05 Marks)  
 c. Foil's information gain. (05 Marks)  
 d. Spatial data mining. (05 Marks)

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**Seventh Semester B.E. Degree Examination, June/July 2011**  
**Java and J2EE**

Time: 3 hrs.

Max. Marks:100

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

**PART - A**

1 a. class Example {  
     public static void main (String s[ ]) {  
         int a;  
         for (a = 0; a < 3; a++) {  
             int b = -1;  
             system.out.println(" " + b);  
             b = 50;  
             system.out.println(" " + b);  
         }  
     }  
 }

What is the output of the above code? If you insert another 'int b' outside the for loop, what is the output? (05 Marks)

- b. With example, explain the working of >> and >>>. (06 Marks)
- c. What is the default package and default class in Java? (02 Marks)
- d. Write a program to calculate the average among the elements { 4, 5, 7, 8 }, using for each in Java. How for each is different from for loop? (07 Marks)

- 2 a. With example, give two uses of super. (06 Marks)
- b. Write a program which contains one method which will throw `IllegalAccessException` and use proper exception handlers so that exception should be printed. (04 Marks)
- c. What are the two types of applet? Explain the skeleton of an applet. Enlist applet tags. (06 Marks)
- d. Give the different forms of repaint method. (04 Marks)

- 3 a. With syntax, explain use of `isAlive()` and `join()` methods. (04 Marks)
- b. How synchronization can be achieved for threads in Java? Explain with syntax. (06 Marks)
- c. Enlist the different methods in `WindowListener`. What is the use of `WindowAdaptor`? (03 Marks)
- d. Write a program using an applet which will print "key pressed" on the status window when you press the key, "key released" on the status window when you release the key and when you type the characters it should print "Hello" at co-ordinates (50, 50) on Applet. (07 Marks)

- 4 a. How AWT is different from Swings? What are the two key features of it? Explain. (08 Marks)
- b. List four types of buttons in swings with their use. Write a program to create four different types of buttons on JApplet. Use suitable events to show actions on the buttons and use `JLabel` to display the action invoked. (12 Marks)

**PART – B**

- 5 a. Give an overview of the JDBC process. (08 Marks)  
b. With proper syntax, explain three types of getConnection method. (06 Marks)  
c. Explain the scrollable resultset with an example. (06 Marks)
- 6 a. How servlets are better in comparison with CGI? Explain init() and service(). (08 Marks)  
b. Enlist core classes and interfaces available in javax.servlet.http package. (04 Marks)  
c. Write a program using servlet which contains HTML page with various color options. When user choose 8 the particular color, the background of that page should be changed accordingly. (08 Marks)
- 7 a. Discuss different types of JSP tags. (05 Marks)  
b. Department has set the grade for the subject Java as follows:  
Above 90 = A, 80 – 89 = B, 70 – 79 = C  
Below 70 = fail.  
Sham enters his marks for the subject Java in the interface provided. Write a JSP program to accept the marks entered and display his grade to the browser. (08 Marks)  
c. Briefly explain how Remote Method Invocation works in Java. (07 Marks)
- 8 a. Explain the various EJB transaction attributes. (08 Marks)  
b. Write a code skeleton of a session bean. (06 Marks)  
c. Why message-driven bean is designed? Explain four methods of it. (06 Marks)

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**Seventh Semester B.E. Degree Examination, June/July 2011**  
**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 features and building blocks of .Net framework. (10 Marks)
  - b. Write a note on .Net name space. (04 Marks)
  - c. Explain the role of the common intermediate language. (06 Marks)
- 2
  - a. Discuss the difference between value type and reference types. (06 Marks)
  - b. Explain how CSC .exe compiler is used to build C# application. Explain any five flags with appropriate examples. (06 Marks)
  - c. Write a C# program to demonstrate use of Static and Read-only variables. (08 Marks)
- 3
  - a. Explain boxing and unboxing with examples. (06 Marks)
  - b. Explain the functions of system object class. Give overridden definition for ToString( ) and Equals( ). (08 Marks)
  - c. Explain the following terms, with an example, with reference to C #.  
i) foreach ii) params iii) verbatim. (06 Marks)
- 4
  - a. What is inheritance? How is it implemented in C#? (06 Marks)
  - b. State and explain the characteristics of abstract classes. (08 Marks)
  - c. Write a program to describe sealed class and sealed method. (06 Marks)

**PART – B**

- 5
  - a. Explain the different methods of file system. GC type. (05 Marks)
  - b. Explain with examples interface hierarchy. (07 Marks)
  - c. What is an interface in C# and how is it different from polymorphism in C++? (08 Marks)
- 6
  - a. Define the following keywords with program example :  
i) try ii) throw iii) catch iv) finally. (10 Marks)
  - b. Why is proper ordering of catch blocks necessary in C#? (05 Marks)
  - c. Write C# application to illustrate handling multiple exceptions. (05 Marks)
- 7
  - a. What are the main advantages of C# events? (05 Marks)
  - b. What are delegates? Explain the members of system. Multicast delegates : Give a small program to implement multicasting. (10 Marks)
  - c. What are the differences between private assembly and shared assemblies? (05 Marks)
- 8
 

Write short notes on :

  - a. Indexers
  - b. Mutable and immutable strings
  - c. Enumeration in C#
  - d. Garbage collection in .Net. (20 Marks)



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**Seventh Semester B.E. Degree Examination, June/July 2011**

**User Interface Design**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. What are the measurable human factors central to community evaluation? (05 Marks)
- b. Enumerate the motivations for human factors in design considering the following classes :  
i) Life critical systems      ii) Office home and entertainment application (05 Marks)
- c. Explain the golden rules of interface design. (10 Marks)
- 2 a. Why should guidelines documents be prepared? (05 Marks)
- b. Give the guidelines for performing ethnographic study. (05 Marks)
- c. Describe usability testing and laboratories as evaluation techniques. (10 Marks)
- 3 a. What are the benefits of user-interface building tools? (05 Marks)
- b. What is remote direct manipulation? What are the factors that complicate such systems? (05 Marks)
- c. List the various design specification methods. Explain the one which is suitable to represent direct manipulation systems and give an example. (10 Marks)
- 4 a. How should the items on a menu be phrased? (05 Marks)
- b. Give the important guidelines for form-filling design. (10 Marks)
- c. What are the guidelines for using abbreviations? (05 Marks)

**PART – B**

- 5 a. What tasks can be performed using pointing devices? (05 Marks)
- b. Explain Fitt's law. (05 Marks)
- c. What are the attributes of display devices? List the criteria to be considered for printers. (10 Marks)
- 6 a. What are the guidelines for non-anthropomorphic display design? (05 Marks)
- b. What are the benefits and dangers of using colour coding? (05 Marks)
- c. Give the recommendations for constructing better messages. (10 Marks)
- 7 a. Give the product guidelines for preparing a good user manual. (05 Marks)
- b. What are the guidelines for on-line help? (05 Marks)
- c. What are the different solutions for providing access to multiple sources of information? (10 Marks)
- 8 Write explanatory notes on :
  - a. Techniques for getting users' attention (05 Marks)
  - b. Speech generation (05 Marks)
  - c. Dialog boxes (05 Marks)
  - d. On-line tutorials. (05 Marks)