USN | | | | | | | | | | **10CS71**

Seventh Semester B.E. Degree Examination, June/July 2019
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 object oriented development? List and explain object oriented themes.   **(10 Marks)**
    b. Define the following terms with examples:
       i)   Links and associations
       ii) Multiplicity
       iii) Association end names
       iv) Ordering
       v)   Bag and sequence   **(10 Marks)**

2   a. What is an aggregation? Explain aggregation versus associations and aggregation versus composition.   **(10 Marks)**
    b. Explain the following terms with an examples:
       i) Meta data   ii) Derived data   iii) Reification   **(06 Marks)**
    c. Draw the state diagram for a telephone line.   **(04 Marks)**

3   a. What do you mean by concurrency? Explain aggregation concurrency with a neat diagram.   **(08 Marks)**
    b. What is an interaction model? Explain with a neat diagram sequence diagram for a online stock broker.   **(06 Marks)**
    c. Explain the following terms with examples:
       i) Include relationship   ii) Extend relationship   iii) Generalization   **(06 Marks)**

4   a. List and explain the stages involved in software development.   **(10 Marks)**
    b. List the steps to construct a domain class model and explain them briefly.   **(10 Marks)**

PART – B

5   a. Explain the steps followed in constructing application interaction model.   **(10 Marks)**
    b. With a neat diagram explain the architecture of ATM system.   **(07 Marks)**
    c. Name the three kinds of controls for the external event in a software system.   **(03 Marks)**

6   a. What is refactoring? Explain the tasks involved in design optimization.   **(10 Marks)**
    b. What are the steps involved in improving the organization of a class design? Explain them briefly.   **(10 Marks)**

7   a. What is a pattern? Lists the properties of pattern.   **(10 Marks)**
    b. With a neat diagram, explain the publisher-subscriber design pattern with necessary implementation steps.   **(10 Marks)**

8   a. Explain the structure and implementation steps of view handler pattern with a neat diagram.   **(10 Marks)**
    b. With a neat diagram explain the counted pointer idiom.   **(10 Marks)**

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Seventh Semester B.E. Degree Examination, June/July 2019
Information System

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 fundamental role of information system in business?   **(05 Marks)**
   b. List and briefly explain 5 important components (or) functions of system.   **(05 Marks)**
   c. Explain the components of information systems.   **(10 Marks)**

2   a. List and describe basic competitive strategies, with a neat diagram.   **(10 Marks)**
   b. How to build knowledge creating company using IT?   **(10 Marks)**

3   a. Explain transaction processing cycle with neat diagram.   **(10 Marks)**
   b. Explain the enterprise application architecture illustrating the major cross functional enterprise application and their interrelationships.   **(10 Marks)**

4   a. Define CRM. Explain the phases of CRM and support between business and its customers.   **(10 Marks)**
   b. What is ERP? Explain benefits and challenges of ERP. Explain in detail.   **(10 Marks)**

PART – B

5   a. Explain the E – commerce Process Architecture, with a neat diagram.   **(10 Marks)**
   b. Explain the Secure E – payment system, with an example.   **(10 Marks)**

6   a. Define DSS. Explain the components of web Enabled Marketing DSS.   **(10 Marks)**
   b. Write a short note on following terms :
     i) Artificial Intelligence   ii) Expert systems.   **(10 Marks)**

7   a. Discuss about business ethics and technology ethics.   **(10 Marks)**
   b. Explain about tools of security management of IT.   **(10 Marks)**

8   a. Explain the major components of business / IT planning process and IT Architecture.   **(10 Marks)**
   b. Describe the top issues in managing international data communication.   **(10 Marks)**

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Seventh Semester B.E. Degree Examination, June/July 2019

Programming the Web

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 HTTP? Explain HTTP phases. Mention various methods and status codes of HTTP.   **(10 Marks)**

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

2   a.   Create XHTML document to describe a table with the following contents: The columns of the table must have the headings pine, maple, Oak and fir. The rows must have the labels average height, average width, typical life span and leaf type. Fill the data cells with some values.   **(10 Marks)**

     b.   Write an XHTML document that has six short paragraphs of text. Define three different paragraph styles p_1, p_2 and p_3. The p_1 style must use left and right margins of 20 pixels, a background color of pink and a foreground color of blue. The p_2 style must use left and right margins of 30 pixels, a background color of black and a foreground color of yellow. The p_3 style must use a text indent of 1 centimeter, a background color of green and a foreground color of white. The first and fourth paragraph must use p_1, the second and fifth must use p_2 and the third and sixth must use p_3.   **(10 Marks)**

3   a.   Explain the screen output and keyboard input method, with example.   **(10 Marks)**

     b.   Write XHTML document and JAVA script code to implement, to count the number of names in the given array that end in either "ie" or "y".   **(05 Marks)**

     c.   Write a note on character and character classes.   **(05 Marks)**

4   a.   Explain the basic concepts of event handling. List the events and their tag attributes.   **(12 Marks)**

     b.   With an example, explain absolute and relative positioning of elements in JAVA script.   **(08 Marks)**

PART – B

5   a.   What is the Document Type Definition (DTD)? Describe the approach to declare elements, entities and attributes.   **(08 Marks)**

     b.   Create an XML documents that lists advertisement for selling used cars.   **(06 Marks)**

     c.   With a neat diagram, explain transformation process by an XSLT processor.   **(06 Marks)**

6   a.   Write a perl program which creates a hash table containing country names keys and their capitals as values and perform the following:
        i)   Print all pair of values (country name and capital)
        ii)   Accept country name and print the capital of it.   **(10 Marks)**

     b.   With an example, explain how files are handled in PERL.   **(10 Marks)**

7 a. Describe how files are created, read and write on the server system using PHP. **(10 Marks)**
   b. Explain any six string function in PHP. **(06 Marks)**
   c. Explain the different types of scalar types are available in PHP. **(04 Marks)**

8 a. Discuss the different pattern matching operations are available in ruby with example each. **(08 Marks)**
   b. Build a rail's application to accept book information viz accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search result with proper headings. **(12 Marks)**

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Seventh Semester B.E. Degree Examination, June/July 2019
Advanced Computer Architecture

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a.   Define instruction set architecture. Illustrate seven dimensions of ISA.   **(08 Marks)**
    b.   Find the number of dies 350 mm wafer for a die that is 17.5mm on a side and find yield by assuming density of $0.5/cm^2$ and manufacturing complexity is 4.   **(04 Marks)**
    c.   Explain the methods and observations to improve the performance of a system.   **(08 Marks)**

2   a.   With data path explain classic five stage pipeline for a RISC processor.   **(06 Marks)**
    b.   Explain the methods to reduce pipeline branch penalties.   **(06 Marks)**
    c.   List types of exceptions and explain requirements on exceptions.   **(08 Marks)**

3   a.   Define true data dependences and name data dependences. Explain all possible data hazards.   **(07 Marks)**
    b.   Explain 2-bit branch prediction scheme with state diagram.   **(05 Marks)**
    c.   With neat diagram, explain Tomasulo's approach for dynamic scheduling.   **(08 Marks)**

4   a.   List the falvours of multiple issue processor with basic VLIW approach.   **(08 Marks)**
    b.   Illustrate how branch target buffer helps in reducing the branch penalties.   **(06 Marks)**
    c.   Explain how speculation supports for register renaming.   **(06 Marks)**

PART – B

5   a.   Explain Flynn's classification of computers.   **(06 Marks)**
    b.   To achieve a speedup of 80 with 100 processor. What fractions of the original computation can be sequential?   **(04 Marks)**
    c.   Explain directory based cache-coherence protocol.   **(06 Marks)**
    d.   Write a note on memory consistency.   **(04 Marks)**

6   a.   Derive the CPU execution time equation by considering memory stall cycles.   **(05 Marks)**
    b.   Explain write strategy in first-level of the memory hierarchy.   **(05 Marks)**
    c.   Explain how multilevel cache helps in reducing miss penalty. For 1000 memory references there are 40 misses in the first-level cache and 20 misses in the second-level cache. What are the various miss rates? Assume the miss penalty from the L2 cache to memory is 200 clock cycles, the hit time of the L2 cache is 10 clock cycles, the hit time of L1 is 1 clock cycle and there are 1.5 memory references per instruction what is the average memory access time and average stall cycles per instruction?   **(10 Marks)**

7   a.   Write the typical multilevel memory hierarchical structure and define 3 C's of misses.   **(06 Marks)**
    b.   Explain compiler optimization with example.   **(06 Marks)**
    c.   Give the differences between SRAM and DRAM.   **(03 Marks)**
    d.   Explain protection via virtual machines.   **(05 Marks)**

8 a. Consider a loop for (i = 1; i < = 100; i++)
{
A [i] = A[i] + B[i]; /*S1*/
B [i + 1] = C [i] + D [i];} /*S2*/

What are the dependences between S1 and S2? Is the loop parallel? If not show how to make it parallel? **(06 Marks)**

b. List the drawbacks of dependences. **(04 Marks)**

c. Explain software pipelining with loop unrolling. **(10 Marks)**

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Seventh Semester B.E. Degree Examination, June/July 2019
Data Warehousing and 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 Operational Data Store (ODS)? Explain the ODS structure with a neat diagram.   **(07 Marks)**

    b. What are the differences between ODS and Data warehouse?   **(07 Marks)**

    c. Explain the implementation steps in Data warehouse.   **(06 Marks)**

2   a. Explain Codds OLAP characteristics.   **(07 Marks)**

    b. Explain ROLAP and MOLAP.   **(06 Marks)**

    c. Explain Data cube operations.   **(07 Marks)**

3   a. What are the challenges that motivated the development of data mining?   **(07 Marks)**

    b. Explain the core data mining tasks.   **(06 Marks)**

    c. What are the different strategies that are used in Data preprocessing? Explain any four of them.   **(07 Marks)**

4   a. Explain Frequent itemset generation of the Apriori Algorithm.   **(06 Marks)**

    b. What are the methods that are used for generating frequent itemsets? Explain them in detail.   **(07 Marks)**

    c. Construct a FP – tree for the following Data set.

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}

(07 Marks)

PART - B

5   a. What are the uses of classification model? Explain the general approach to solving a classification problem.   **(06 Marks)**

    b. Explain Algorithm for Decision Tree Induction.   **(07 Marks)**

    c. Explain K – nearest neighbor classification Algorithm. Summarize the characteristics of nearest – neighbor classifier.   **(07 Marks)**

6   a. Explain Bayes Theorem with a relevant example to solve a prediction problem.   **(06 Marks)**

    b. What are the ways that are used to construct the ensemble of classifiers? Explain the general procedure for ensemble method.   **(07 Marks)**

    c. Explain Multiclass problem.   **(07 Marks)**

7   a. What is Cluster Analysis? Explain different types of clusters.   **(06 Marks)**

    b. Explain Basic Agglomerative Hierarchical Clustering Algorithm. Give its strength & weakness.   **(07 Marks)**

    c. Explain DBSCAN Algorithm. What are the strength and weakness of DBSCAN algorithm?   **(07 Marks)**

8   Write short notes on :

    a. Web content mining.

    b. Text mining.

    c. Text clustering.

    d. Mining Temporal Databases.   **(20 Marks)**

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Seventh Semester B.E. Degree Examination, June/July 2019
Java and J2EE

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. Explain three kinds of variables in Java.   (06 Marks)
   b. What are arrays? List out the three steps to create an array.   (04 Marks)
   c. Describe the process of building and running Java program with an example.   (04 Marks)
   d. Discuss different access specifiers in Java.   (06 Marks)

2 a. Define an Applet. Explain the skeleton of an applet with example program.   (08 Marks)
   b. Explain the types of exceptions in Java.   (06 Marks)
   c. What is difference between a superclass and subclass? Write a program to demonstrate the
      same.   (06 Marks)

3 a. What are threads? Explain how to make the class threadable.   (07 Marks)
   b. What is synchronization? Explain producer consumer problem with a program.   (09 Marks)
   c. Write short notes on sources of events.   (04 Marks)

4 a. What are swing components? Explain atleast 4 swing components.   (06 Marks)
   b. What are containers? Explain a simple container.   (06 Marks)
   c. Write a short note on :
      i) JTabbedPane
      ii) JScrollPane
      iii) JList
      iv) JComboBox.   (08 Marks)

PART – B

5 a. Explain JDBC process in detail.   (12 Marks)
   b. Write a short notes on :
      i) J2EE
      ii) J2SE
      iii) ResultSet
      iv) ResultSetMetaData.   (08 Marks)

6 a. Explain the difference between the applet and servlet.   (04 Marks)
   b. With a diagram, explain servlet life cycle.   (08 Marks)
   c. With a program, explain handling HTTP requests and responses.   (08 Marks)

7 a. Why we use JSP? Explain JSP tags.   (08 Marks)
   b. Explain Apache Tomcat with example program.   (06 Marks)
   c. Write a short notes on :
      i) Session and cookies in JSP
      ii) RMI.   (06 Marks)

8 a. What is EJB? Explain three types of EJB that are suited to different purposes. (07 Marks)
   b. Explain session beans with an example program.   (05 Marks)
   c. What are JAR file? Explain the benefits of JAR file format.   (08 Marks)

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Seventh Semester B.E. Degree Examination, June/July 2019

C# Programming and .NET

Time: 3 hrs.   Max. Marks:100

**Note: *Answer any 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. What is an assembly? Explain each component of an assembly. Differentiate between single file and multi file assembly.   **(10 Marks)**

2   a. Explain how csc.exe command is used to build C# applications on .NET. Explain any five flags with appropriate examples.   **(06 Marks)**
    b. What is cordbg.exe? List and explain any five command line flags recognized by cordbg.exe while running .NET assemblies under debug mode.   **(08 Marks)**
    c. Explain any three C# preprocessor directives.   **(06 Marks)**

3   a. What is the role of master node System.Object? Explain the functionality of the methods Equals( ) and ToString( ).   **(06 Marks)**
    b. Write a C# program to read a jagged array and display the product of all the elements of the three inner arrays.   **(06 Marks)**
    c. Explain the following terms with an example:
      i)   ref parameter
      ii) params
      iii) out
      iv) boxing and unboxing   **(08 Marks)**

4   a. What are the three pillars of object oriented programming in C#? Differentiate between "is-a" and "has-a" relationship with examples.   **(08 Marks)**
    b. Write a C# application which defines a class shape. With four data members length, breadth, height and radius, appropriate constructors and methods to calculate the volume of cube, cone and sphere. Also write shapeapp, which creates three objects ie cube, cone and sphere using appropriate constructors and calculate their volume with the help of the above class methods.   **(08 Marks)**
    c. Write a C# program to explain sealed class and method.   **(04 Marks)**

PART – B

5   a. What are bugs, errors, and exception? List and explain core members of System.Exception type.   **(10 Marks)**
    b. Explain any five methods of file System.GC type.   **(10 Marks)**

6   a. What is an Interface? Explain with an example any three Interfaces of System.Collection namespace.   **(08 Marks)**

b. Write a C# program which contains the following:
   i) An Interface dimension with methods length( ) and width( ) which returns length and width in centimeters.
   ii) Another Interface called metric dimension with methods lengthinches( ) and widthinches( ) which returns length and width in inches.
   iii) A class box that implements both the above said interfaces. This class has two members lengthinches and widthinches. Define appropriate constructors for the class box. Write main program to create an instance of box and to display box length and width in inches and centimeters by invoking the appropriate methods of two interfaces. **(08 Marks)**

c. Briefly explain with an example, explicit interface implementation. **(04 Marks)**

7 a. What are delegates? Explain the members of System.Multicast delegates. Give a small program to implement multicast delegate. **(10 Marks)**

b. Write a C# program to overload plus and minus operator for two square matrices. **(06 Marks)**

c. What is an event? Explain with an example event declaration. **(04 Marks)**

8 a. With a neat diagram, explain physical view and logical view of .NET Assemblies. **(06 Marks)**

b. List the key elements and core CIL Assembly Manifest. **(10 Marks)**

c. Write short notes on private assemblies. **(04 Marks)**

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Seventh Semester B.E. Degree Examination, June/July 2019
Storage Area Networks

Time: 3 hrs.

Max. Marks:100

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

PART – A

1 a. Which core elements are essential for the basic functionality of a data center? Briefly explain with an order processing system. **(12 Marks)**
   b. What is disk service time? Explain different service times on a disk driver. **(08 Marks)**

2 a. Compare the RAID0, RAID1, RAID 1+0 and RAID 0+1 based on storage efficiency, Read performance write performance and write penality. **(12 Marks)**
   b. Briefly explain Read hit and Read miss in cache. **(08 Marks)**

3 a. With neat diagram explain SCSI communication model. **(10 Marks)**
   b. What are different types of ports available in Fiber channel? Also mention its uses. **(10 Marks)**

4 a. What are the benefits of NAS. **(10 Marks)**
   b. Explain NAS File – sharing protocols. **(10 Marks)**

PART – B

5 a. Define Archives. Explain different types of Archives with an example. **(10 Marks)**
   b. Explain the concept of storage virtualization with figure. **(10 Marks)**

6 a. Explain BC planning life cycle. **(12 Marks)**
   b. With neat diagram explain LAN based back up topology. **(08 Marks)**

7 a. Explain different purposes of Local replica for source data. **(10 Marks)**
   b. Explain Host – based log shipping. **(10 Marks)**

8 Write a short note on :
   a. Assets
   b. Threats
   c. Vulnerability
   d. Data encryption **(20 Marks)**

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