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10CS71

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Object Oriented Modeling and Design

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain object oriented development, object oriented methodology and object oriented themes. **(10 Marks)**

b. Explain modeling concept. Write the class model of a windowing system. **(10 Marks)**

2 a. Explain association and aggregation with examples. **(10 Marks)**

b. What is an event? Explain the different types of events with examples. **(10 Marks)**

3 a. What is concurrency? Explain aggregation concurrency. Draw relevant figure. **(10 Marks)**

b. Explain use case and sequence model with examples. **(10 Marks)**

4 a. Explain software development stages in detail. **(10 Marks)**

b. Describe the stages in consetercting a domain state model. **(10 Marks)**

PART – B

5 a. With a neat block diagram, explain the steps followed in constructing application class model. **(10 Marks)**

b. Explain the steps involved in system design. **(10 Marks)**

6 a. Explain with an example, the class design what are the steps involved in designing. **(10 Marks)**

b. Explain :
i) Forward engineering
ii) Reverse engineering
iii) Wrapping. **(10 Marks)**

7 a. What is a pattern? Explain the model view controller design for software architecture with OMI diagram. **(10 Marks)**

b. Explain three categories of patterns. **(10 Marks)**

8 Write short notes on :
a. UML
b. State model
c. Association ends
d. Packages. **(20 Marks)**

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10IS72

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Information Systems

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. Explain the roles of IS in business with help of neat diagram. **(06 Marks)**
b. Elaborate the classifications of information systems. **(10 Marks)**
c. Bring out the components of information system resources. **(04 Marks)**

2 a. What are the basic business strategies of virtual companies? **(06 Marks)**
b. Describe basic competitive strategies and competitive forces in business. **(10 Marks)**
c. Write a note on knowledge management system. **(04 Marks)**

3 a. Draw and explain enterprise application architecture. **(10 Marks)**
b. Describe transaction processing cycle along with its stages. **(10 Marks)**

4 a. Explain three phases of CRM. **(08 Marks)**
b. What are the major application components of ERP? **(06 Marks)**
c. Explain the benefits and challenges of ERP. **(06 Marks)**

PART – B

5 a. Explain essential e-commerce processes. **(10 Marks)**
b. Draw and explain electronic payment system. **(10 Marks)**

6 a. Discuss the management reporting alternatives with respect to MIS. **(08 Marks)**
b. What are the four basic types of analytical modeling? **(06 Marks)**
c. Explain the major application areas of artificial intelligence. **(06 Marks)**

7 a. What is hacking? What are the common hacking tactics? **(10 Marks)**
b. Explain the important security measures that are part of security management of information system. **(10 Marks)**

8 a. Describe the major dimensions of global e-business technology management. **(10 Marks)**
b. Discuss major issues in managing international data communications. **(10 Marks)**

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10CS73

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Programming the Web

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain the terms :
i) Internet ii) Web iii) Web Browser iv) Web server v) MIME. **(10 Marks)**

b. Give syntax and an example to each of the following tags :
i) <pre> ii) <a> iii) <img> iv) <sub> v) <p>. **(10 Marks)**

2 a. What are the different levels of CSS style sheets? **(09 Marks)**

b. Explain the concept of pseudo classes. **(05 Marks)**

c. Create and test an XHTML document that describes an unordered list of at least five popular books. The bullet for each book must be a small image of its books cover. **(06Marks)**

3 a. Describe briefly major difference between JaveScript and Java. **(04 Marks)**

b. Describe the two ways of an array object can be created. **(04 Marks)**

c. Develop and demonstrate using JavaScript, a XHTML document that collects the USN (the valid format is a digit from 1 to 4 followed by two upper-case characters followed by two digits followed by two upper_case characters followed by 3 digits (no embedded space allowed) and semester (the valid format is a digit from 1 to 8) of the user. Event handler must be included for the form element that collects this information to validate the input. Messages in the alert windows most be produced when errors are detected. **(12 Marks)**

4 a. Explain the terms: i) DOM ii) Event iii) Event handler iv) Even registration. **(10 Marks)**

b. Explain the technique of DOM tree traversal with a program. **(10 Marks)**

PART – B

5 a. What is XML? Explain how to write an XML document. **(10 Marks)**

b. Differentiate DOM and SAX. **(05 Marks)**

c. What is XSLT? Explain with an example. **(05 Marks)**

6 a. Explain three different types of variables that could be used in Perl with the help of example. **(06 Marks)**

b. Explain the following functions : i) Shift( ) ii) Unshift( ) iii) Push( ) iv) Pop( ). **(08 Marks)**

c. What is the purpose of CGI? How CGI overcomes the limitations of XHTML. **(06 Marks)**

7 a. What are the four scalar types of PHP? **(08 Marks)**

b. Write the syntax and semantics of the two forms of the 'foreach' statement with example. **(08 Marks)**

c. Define cookie. Where cookie has to be stored? **(04 Marks)**

8 a. Explain the terms : i) MVC ii) ORM. **(10 Marks)**

b. Explain the directory structure for the rails1 application. **(10 Marks)**

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10CS74

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Advanced Computer Architecture

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Define computer architecture. Illustrate the seven dimensions of an ISA. **(10 Marks)**

b. Find the number of dies per 200cm wafer of circular shape that is used to cut die that is 1.5cm side and compare the number of dies produced on the same wafer if die is 1.25cm. **(06 Marks)**

c. What is dependability? Explain the two measures of dependability. **(04 Marks)**

2 a. What are the major hurdles of pipelining? Illustrate the branch hazard in detail. **(10 Marks)**

b. List and explain five ways of classifying exception in a computer system. **(05 Marks)**

c. Consider a unpipelined processor and assume that it has a 1ns clock cycle and that it uses 4 cycles for ALU operations and branches and 5 cycles for memory operations. Assume that the relative frequencies of these operations are 40%, 20% and 40% respectively. Suppose that due to clock skew and setup, pipelining the processor adds 0.2ns of overhead to the clock. Ignoring any latency impact, how much speedup in the instruction execution rate will be gained from a pipeline. **(05 Marks)**

3 a. List different types of data dependencies. Explain name dependences with example. **(05 Marks)**

b. Mention the drawback of 1–bit branch predictor scheme and explain the states in 2-bit predictor scheme used for dynamic branch prediction. **(05 Marks)**

c. With a neat diagram give the basic structure of Tomasulo based MIPS FP unit and explain the various field of reservation stations. **(10 Marks)**

4 a. Explain the basic VLIW approach for exploiting ILP, using multiple issues. **(10 Marks)**

b. What is branch target buffer? With the neat diagram, explain the steps when using branch target buffer for a simple five stage pipeline. **(10 Marks)**

PART – B

5 a. Explain the different taxonomy of parallel architecture. **(04 Marks)**

b. With neat diagrams, explain the basic structure of centralized shared memory and distributed shared memory multiprocessor. **(06 Marks)**

c. Explain the directory based cache coherence for a distributed memory multiprocessor system along with the state transition diagram. **(10 Marks)**

6 a. Explain the organization of the data cache in the AMD opteron microprocessor. **(05 Marks)**

b. Explain the techniques for fast address translation. **(05 Marks)**

c. List and explain six basic cache optimization techniques. **(10 Marks)**

7 a. List eleven advanced optimizations of cache performance and explain any five in detail. **(12 Marks)**

b. Explain memory technology and optimizations. **(08 Marks)**

8 a. Explain detecting and enhancing loop level parallelism for VLIW. **(10 Marks)**

b. Explain Intel IA – 64 architecture in detail. **(10 Marks)**

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10IS74

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Data warehousing and Data Mining

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 metadata? Derive some examples of metadata from everyday situations. **(06 Marks)**

b. What is data scrubbing? On what basis data scrubbing is done? Explain. **(06 Marks)**

c. Why and when would an enterprise implement a separate ODS and a separate data warehouse? Explain. **(08 Marks)**

2 a. Define OLAP? Differentiate between OLTP and OLAP. **(06 Marks)**

b. With an example, explain the relationship between aggregations of a 3D cube. **(06 Marks)**

c. Describe the operations roll-up, drill-down, slice and dice and pivot. **(08 Marks)**

3 a. What is data mining? Explain the process of knowledge discovery in databases. **(06 Marks)**

b. Consider the following tow binary vectors
X = (1, 0, 0, 0, 0, 0, 0, 0, 0, 1) and
Y = (0, 1, 0, 1, 0, 1, 0, 1, 0, 1)
Find the i) Cosine ii) SMC iii) Jaccard coefficient. **(06 Marks)**

c. Explain the various sampling approaches. **(08 Marks)**

4 a. A database has 5 transactions. Let min_sup = 60% and min_conf = 80%

Tid	Items
1	A B C D E F
2	B C D E F G
3	A D E H
4	A D F I J
5	B D E K

Generate all the frequent itemsets and the association rules using apriori algorithm. **(12 Marks)**

b. Explain the various alternative methods for generating frequent itemsets. **(08 Marks)**

PART – B

5 a. Write and explain with an example the algorithm for nearest neighbor classification. **(06 Marks)**

b. Construct a decision tree for a customer data base at car sales shop

ID	Age	Income	Student	Credit Rating	Buy Car
1	Young	High	No	Fair	No
2	Young	High	No	Good	No
3	Middle	High	No	Fair	Yes
4	Old	Medium	No	Fair	Yes
5	Old	Low	Yes	Fair	Yes
6	Old	Low	Yes	Good	No
7	Middle	Low	Yes	Good	Yes
8	Young	Medium	No	Fair	No
9	Young	Low	Yes	Fair	Yes
10	Old	Medium	Yes	Fair	Yes
11	Young	Medium	Yes	Good	Yes
12	Middle	Medium	No	Good	Yes
13	Middle	High	Yes	Fair	Yes
14	Old	Medium	No	Good	No

(06 Marks)

c. Explain the various measures for selecting the best splits with an example. **(08 Marks)**

6 a. List 5 criteria for evaluating classification methods. Discuss them briefly. **(06 Marks)**

b. What is Baye's theorem? Show how it is used as the basis of the Naïve Baye's classifier. **(08 Marks)**

c. Describe any 3 methods of estimating the accuracy of a classification method. **(06 Marks)**

7 a. Following five objects, each with two attributes, are to be clustered : A_1 (4, 4), A_2 (8,4), A_3 (15,8), A_4 (24, 4) and A_5 (24, 12).
Find the distance matrix between the objects using Manhattan distance and use the agglomerative method to build hierarchical clusters. **(12 Marks)**

b. Describe the single_link, complete_link, centroid and Ward's algorithm. Which one is used most frequently? Why? **(08 Marks)**

8 Write a note on :

a. Web content mining

b. Text mining

c. Text clustering

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

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10CS/IS753

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Java and J2EE

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain three OOP principles. **(06 Marks)**

b. Explain how JAVA is robust and architecture neutral. **(08 Marks)**

c. Write a JAVA Program to sum only the first five elements of the array. {2, 4, 6, 8, 10, 12, 14, 16, 18} , using "for – each" version of the for loop. **(06 Marks)**

2 a. What is an Applet? With a skeletal code, explain the methods that constitute the life cycle of an applet. **(08 Marks)**

b. What is super? Explain the use of super, with suitable example. **(06 Marks)**

c. What is an Exception? Write the syntax of try and catch block to handle multiple exceptions. Explain. **(06 Marks)**

3 a. What is Thread? Explain two ways of creating a thread in JAVA, with example. **(10 Marks)**

b. Explain the delegation event model used to handle events in Java. What are Events, Event Listeners and Event Sources? **(05 Marks)**

c. Discuss the significance of Synchronization in Java. **(05 Marks)**

4 a. What are the deficiencies of AWT that are overcome by Swings? Explain the two key features of swings. **(08 Marks)**

b. Explain with syntax the following :
i) JLabel ii) JTextField iii) JButton iv) JCheckBox. **(12 Marks)**

PART – B

5 a. Explain the four types of JDBC drivers. **(10 Marks)**

b. Explain any one type of statement object with necessary codes. **(10 Marks)**

6 a. Explain the different stages in the Life Cycle of a Servlet. **(06 Marks)**

b. Explain Servlet Interface , Generic class, Cookie class. **(06 Marks)**

c. Write a program to describe parameter reading using servlets. **(08 Marks)**

7 a. Define JSP. Explain the different types of JSP tags by taking suitable examples. **(10 Marks)**

b. What is RMI? Describe with code Snippet RMI at server side. **(10 Marks)**

8 a. List and explain EJB transaction attributes. **(10 Marks)**

b. Explain : i) JAR file ii) Stateless bean versus stateful bean. **(10 Marks)**

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10CS/IS761

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
C# Programming and •NET

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. What are the building blocks of •Net platform? Give the relationship between •Net runtime layer and base class library. **(08 Marks)**

b. Explain the role of assembly manifest. **(04 Marks)**

c. Explain CTS, briefly explain any three types defined by the CTS, with example. **(08 Marks)**

2 a. Explain output centric options of the C# complier. **(05 Marks)**

b. Explain C# preprocessor directives, with examples. **(06 Marks)**

c. What is command line debugger? Write a C# program to display the following information using system environment class.
   i) Current directory of application
   ii) Operating system version
   iii) Logical drives
   iv) Host name
   v) •Net version. **(09 Marks)**

3 a. Explain the following terms, with an example, with reference to C#
   i) for each ii) ref iii) params iv) out v) do/while loop. **(10 Marks)**

b. Explain boxing and unboxing with examples. **(06 Marks)**

c. Explain core members of system object. **(04 Marks)**

4 a. Explain the three pillars of object oriented programming in C# with an example. **(12 Marks)**

b. Explain with examples, static properties in C#. **(04 Marks)**

c. Write a note on abstract classes. **(04 Marks)**

PART – B

5 a. Explain core members of system exception type. **(08 Marks)**

b. What is meant by object life time? Explain the garbage collection optimization process in C#. **(08 Marks)**

c. Write C# application to illustrate multiple exceptions. **(04 Marks)**

6 a. What is an interface? Explain the three methods to obtain interface references. **(08 Marks)**

b. How to build cloneable and comparable objects in C#. **(06 Marks)**

c. With an example explain any four inter faces of system collection. **(06 Marks)**

7 a. With an example, discuss the advanced keywords of C# : checked, unchecked unsafe. Stack alloc and size of. **(10 Marks)**

b. What are delegates? Explain the members of system multicast delegates : write a sample program to implement delegate. **(10 Marks)**

8 a. Explain the C# support for cross language inheritance, with example. **(06 Marks)**

b. Write a short note on process a multifile assembly. **(06 Marks)**

c. With an example. Explain the role of delayed signing. **(08 Marks)**

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10CS/IS765

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Storage Area Network

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. What is a data center? Explain the key characteristics of the data center elements. **(06 Marks)**

b. Explain the key components of the disk drive system. **(06 Marks)**

c. Consider a disk I/O system in which an I/O request arrives at a rate of 100 I/Os per second. The service time is 8 ms. Commuting the following :
i) Utilization of I/O controller
ii) Total response time
iii) Average queue size
iv) Total time spent by a request in queue. **(08 Marks)**

2 a. Discuss in detail the role of cache in the intelligent storage system. **(10 Marks)**

b. Explain the working of RAID-4 and RAID-5 with a neat diagram. **(10 Marks)**

3 a. Explain SCSI-3 architecture with a neat diagram. **(06 Marks)**

b. Define the term "SAN-storage area network". Explain the different types of FC-ports with a neat diagram. **(08 Marks)**

c. Discuss the concept of zoning and its types. **(06 Marks)**

4 a. What is NAS? What are the benefits of NAS? **(06 Marks)**

b. List down the factors affecting NAS performance and availability. **(06 Marks)**

c. What is iSCSI? Explain iSCSI protocol stack with a neat block diagram. **(08 Marks)**

PART – B

5 a. Explain the concept of CAS with its architecture. List down any four essential features of CAS solution. **(10 Marks)**

b. With a neat diagram, explain the working of In-Band and Out-of-Band methodology in storage virtualization configuration. **(10 Marks)**

6 a. What is failure analysis? How is fault tolerance implementation done to overcome single point of failures in storage network infrastructure? **(10 Marks)**

b. Explain the process of Backup operation and restore operation with a neat diagram. **(10 Marks)**

7 a. Explain the concept and working of LVM-based replication with advantages and limitations. **(10 Marks)**

b. What is remote replication? Explain the concept of synchronous replication and asynchronous replication. **(10 Marks)**

8 a. Explain the following SAN security mechanism :
i) LUN masking and zoning ii) Switch–wide and fabric–wide access control. **(08 Marks)**

b. List and explain four security attributes of a storage security framework. **(04 Marks)**

c. What is monitoring? Explain the concept of accessibility monitoring with a neat diagram. **(08 Marks)**

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