T.E. com. & Information technology
SEM VI

29 May 2010

1st-half-AGJ-10 (a) 11

object oriented Analysis Design

Con. 3534-10. **(OLD COURSE)** **AN-4747**

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questionsout of **remaining**.
(3) Figures supporting answers should be **neat** and **clean**.
(4) Assume **suitable** data if **necessary** and **justify** the same.

1. Solve any **four** :– **20**
   (a) What is a lifetime of an object ? How can you extend the lifetime of an object ?
   (b) What is the difference between Object's method and an Object identifier ?
   (c) Identify the attribute of a dishwasher object.
   (d) What is UML ? What is the importance of UML ?
   (e) What is the purpose of activity diagram ?

2. (a) "College has three departments. Students pay the fees and enroll into the various departments in the college. For each department, specific labs are assigned. Each lab has equipments pertaining to the department. Professors, teach the students in the college. Staff is of three types. Professors, Lab assistants and Non-teaching staff. Each professor teaches only one subject. Students may or may not stay in the hostel. Staff can stay in hostel. College prepares results, conducts exams and distributes results to the students. Each lab has a Lab assistant assigned to it. Roll numbers are assigned to the students." **20**
   Draw the class diagram, use case diagram, functional model and draw a state transition diagram for "student and staff".

3. (a) Develop a sequence/collaboration diagram for the "deposit checking" use case of bank. **10**
   (b) Explain different types of coupling and cohesion. **10**

4. (a) Describe the macro and micro process of view layer design. **10**
   (b) Explain system testing and different types of system testing. **10**

5. (a) What is static modelling ? Explain different steps that are performed in constructing a static model. **10**
   (b) What are swim lanes? Explain with example. **10**

6. (a) You are appointed as a consultant for the intranet development of your college. Write detailed statement of the problem. Construct a Component diagram and Deployment diagram for the same. **10**
   (b) Name and explain 5 Booch diagrams. **10**

7. (a) Explain verification and validation testing. **10**
   (b) Explain the steps in constructing a functional model. **10**

T.E. Com/ Sem VI / Rev

Con. 3617-10. **(REVISED COURSE)** **AN-4468**

Systems Programming & Compiler construction

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory.**
(2) Attempt any **four** questions out of remaining **six** questions.

1. Answer the following questions in short (any **four**) :— **20**
   (a) Differentiate between Parse tree and Syntax tree.
   (b) State the reasons for the assembler to be multipass program.
   (c) Explain role of the finite automata in Compiler theory.
   (d) With example explain the process of elimination of left recursion.
   (e) What is System Programming ? List some System Programs and write their functions.

2. (a) With the help of following grammar and given string explain role of operator precedence parser. **10**

   $E \rightarrow E + T / T$
   $T \rightarrow T * V / V$
   $V \rightarrow a / b / c / d$

   String to parse 'a + b*c*d'

   (b) Explain when will a macro be used in a program ? How is macro different from subroutine ? **10**

3. (a) Generate three address code for a given expressions. **10**
   while (A < B) do
   if (C < D) then X = Y + Z

   (b) (i) Write a note on JAVA Compiler and Environment. **5**
   (ii) What are assembler directives? Explain with example. **5**

4. (a) Test whether the grammar is LL(1) or not, and construct a predictive parsing table for it. **10**

   $S \rightarrow AaAb / BbBa$
   $A \rightarrow \epsilon$
   $B \rightarrow \epsilon$

   (b) Explain various phases of Compiler with suitable example. **10**

5. (a) With reference to assembler explain the following tables with suitable example. **10**
   (1) POT (2) MOT (3) ST (4) LT

   (b) What are different functions of loader ? Explain difference between linkage editor and linking loader. **10**

6. (a) Explain run time storage organization in detail. **10**
   (b) Explain role of code optimization in compiler designing with suitable example. **10**

7. (a) What is binding ? Explain static and dynamic binding. **10**
   (b) Explain syntax directed translation with respect to construction of syntax tree. **10**

T.E. Com / Sem VI old

13-p3-upq-Con No. File

Advanced Databased 3 June 2010

Con. 3540-10. **(OLD COURSE)** **AN–4762**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.

1. Database is to be designed for a college to monitor students progress throughout their courses study. The Students are reading for a degree such as (B.A., B.Com., M.Sc. etc) within the framework of modular system. The college provides a number of modules, each has been characterized by its code, title, credit value, module leader, who share teaching duties with one or more lecturers. A lecturer may teach (and be a module leader for) more than one module. Students are free to choose any module they wish but the following rules must be observed: Some modules required prerequisites module and some degree programs have compulsory modules. The database also contain some information about students including their number, names, address, degree they read for and their past performance(i.e. module taken and examination results)
   (a) Draw an extended ER diagram for the above system. 6
   (b) Design an OO schema. 8
   (c) Take 2 typical queries and write them in OQL. 6

2. (a) Explain different architecture for parallel database. 10
   (b) State comparison of RDBMS , OODBMS, ORDBMS. 10

3. (a) What is datawarehouse? Explain star and snowflake schema ? How they are constructed . 10
   (b) What is the difference between transient and persistent object ? What are the ways of making the object persistence? 10

4. (a) Explain Data Mining with respect to knowledge discovery in database. Also explain 'classification' in data mining. Discuss the 'decision tree classifier' technique for classification. 10
   (b) Write a short note on Geographical Information System(GIS). 10

5. (a) Write a short note on Deductive database system. 10
   (b) What is well-formed and valid XML document ? with example explain what is XML schema fie. 10

6. (a) Explain different types of fragmentation techniques in a distributed database. 10
   (b) In SQL 3 how type inheritance and table inheritance is implemented? Explain it with example. 10

7. Write short notes on (any two) ; – 20
   (a) Temporal Database
   (b) Object Structure and Type constructor
   (c) Web databases.

T.E. Com I sem VI /old

systems programing.

Con. 3650-10. **(OLD COURSE)** **AN–4750**

(3 Hours) **[Total Marks : 100**

N. B. 1) Question No. 1 is compulsory.

2) Attempt any four questions out of remaining six questions.

3) Figures to the right indicate full marks.

Q.1. a) Explain the design of two pass assembler with database used. 10

b) Explain two pass macro processor with neat flowcharts and databases. 10

Q.2. a) Explain different types of text editors. 10

b) Explain the design of direct linking loader 10

Q.3. a) Explain runtime storage organization in detail. 10

b) Distinguish between top down and bottom up parsing 10

Q.4. a) Explain code optimization in compilers. 10

b) Discuss the various error detected in each phase of compiler. What are the various error detected techniques? 10

Q.5. a) What is grammar? Explain different types of grammar with the help of example. 10

b) Explain with the help of memory, data formats, registers , instruction format, addressing modes of traditional RISC machines 10

Q.6. a) Explain operator precedence t parser with suitable example. 10

b) Explain syntax directed translation. Give syntax directed definition to translate infix expression to postfix expression 10

Q.7. a) Explain different organizations to organize the symbol table in assembler design. Compare these organizations with respect o storage and processing time requirement. 10

b) Explain debug monitors. 10

T.E. Com. SEM VI REV Exam

30 / p3-ksl-upq-FH March KL 2-5 object Oriented software Engineering 29 May 2010

Con. 3513-10. **(REVISED COURSE)** **AN–4465**

(3 Hours) **[Total Marks : 100**

N. B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of the remaining **six** questions.

1. As a developer, transform the following customer's mission statement into a complete, unambiguous description of the system using Usecare and Class diagram. **20**

Prime Care Rental Company Mission Statement—

Since We automated the tracting of cars at our stores—Using bar codes, counter top terminals and laser readers. We have seen many benefits : the productivity of our rental assistants has increased 20%, car rarely go missing and our customer base has grown strongly.

The management feels that the Internet offers further existing opportunities for increasing efficiency and reducing costs. For example rather than printing catalogs of available cars, We could make catalog available to every Internet surfer for broasing on line. For privileged customers, We could provide extra services, such as reservations, at the click of a button. Our target saving in this area is a reduction of 15% in the cost of running each stores.

Within two years, using the full power of e-commerce, We aim to offer all our services via web broaser, with delivery and pick-up at the customer's home, thus achieving our ultimate goal of the virtual rental company, with minimum running costs relative to walk-in stores.

2. (a) What are the five of the most important attributes of software quality ? Explain them. **10**
(b) Compare Waterfall model and Spiral model of Software development. **10**

3. (a) What is wrong with the following designs from the perspective of cohesion and what could be done to improve them ? **10**

There are two subsystems in a University registration system that do the following :

Subsystems A display lists of courses to a student, accepts request from the students to register in courses, ensures that the students has no schedule conflicts and is elegible to register in the courses, stores the data in the database and periodically back up the database. System B allows faculty members to input student grades and allow administrators to assign courses to faculty members, add new courses and change the student registration. It also prints the bill that are sent to students.

(b) Explain the Open Source software life cycle model. **10**

4. (a) Explain the COCOMO used for software estimation. **5**
(b) Write two advantages of PERT chart. **5**
(c) What are the advantages of agile methodology. **5**
(d) Define a state diagram and its various elements. **5**

5. (a) Create three classes linked by associations to represent a student taking courses in a school. Specify appropriate multiplicity as well as labels for the assocation. If there is more than one reasonable alternative, explain the advantages and disadvantages of each. **10**
(b) Explain various software testing strategies. **10**

6. (a) Why is FTR necessary ? How FTR is conducted ? **10**

(b) How development diagrams are useful in modeling a fully distributed system. **10**

7. Write short note on (any **two**) :— **20**

(a) Software Architectural Style

(b) Re-engineering

(c) Software Configuration Management.

T.E. Com / Sem VI / old
Computer Graphics.

Con. 3923-10. **(OLD COURSE)** **AN–4759**

(3 Hours) **[Total Marks : 100**

N. B. 1) Question No. 1 is compulsory.
2) Attempt any four questions out of remaining six questions.
3) Figures to the right indicate full marks.

1.	a)	Explain raster scans and random scan display with example.	10
	b)	Explain and write the depth Buffer algorithm for detecting visible surface.	10
2.	a)	Write an algorithm for Bressenham's circle generation and then using it produces sequence of at least five points along the circumference of circle with radius 20 and centered at (50, 50).	10
	b)	Compare Parallel and perspective projections with reference to practical use only	10
3.	a)	Find the clipping coordinates to clip the line segment AB against the window using Liang Barsky line clipping algorithm. A(20,50), B(80,110)	10
	b)	Explain and write Sutherland Hodgeman polygon clipping algorithm.	10
4.	a)	Explain various area filling method state their merits and demerits.	10
	b)	Explain all 3 D transformations along with matrix representation.	10
5.	a)	Explain image space and object space method. With the help of an example explain scan line method for removing hidden surface.	10
	b)	Explain Guard shading method for shading state its advantage and disadvantage.	10
6.	a)	Give mathematical equation of Bezier curve state its properties and advantage.	10
	b)	Discuss in detail Text and graphics mode.	10
7.		Write short notes on(any two):-	20
		a) CSG methods	
		b) Half toning and dithering technique.	
		c) Segmentation.	

T. E. com / Sem VI / Rev

Advance Com / Network.

Con. 3731-10. **(REVISED COURSE)** **AN-4474**

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.

1. a) Explain in detail TCP/IP Protocol suite. [10]

   b) Discuss Distance vector routing algorithm & Hierarchical routing algorithm with examples. [10]

2. a) Explain in detail Multi Protocol Label Switching (MPLS). [10]

   b) Explain in detail architecture of ATM Network. [10]

3. a) Explain SONET Frame structure. [10]

   b) Explain different QoS parameters in case of ATM. [10]

4. a) What is RTP? Explain RTP frame format in detail. [10]

   b) Explain in detail RSVP protocol. [10]

5. a) Compare 'OSPF' protocol with RIP? Explain OSPF Protocol operation with the help of common header. [10]

   b) What is need for BGP? Explain BGP Protocol in detail [10]

6. a) Describe different delay components in communication network. Explain M/M/I Queuing system. [10]

   b) Explain H.323 standard in detail. [10]

7. Write short note on any two of following :- [20]

   a) SNMP

   b) X.25

   c) Storage Area Networks (SAN)

   d) Enterprise network security.

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12 June 2010. T.E. Com / Sem VI / Old

19 : 1st half-10-DD (G)

Con. 3750-10. **(OLD COURSE)** **AN-4756**

operating system with unix

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Assume **suitable** data whenever **necessary**.
(3) Attempt any **four** questions from remaining **six** questions.
(4) **Figures** to the **right** indicate **marks**.

1. (a) What is mutual exclusion ? Explain Dekker's algorithm for mutual exclusion. **10**
   (b) Explain paging in details. Explain how logical address will convert into physical address. **10**

2. (a) Calculate hit and miss using various page replacement policies (LRU, OPT, FIFO) for following page frame sequences, page frame size is 3. **12**
   0, 4, 3, 2, 1, 4, 6, 3, 0, 8, 9, 3, 8, 5.
   (b) Explain multilevel feedback queue algorithm for process scheduling. **8**

3. (a) Explain various I/O buffering techniques. **10**
   (b) Draw the block diagram of the system kernel of unix operate system and explain its working. **10**

4. (a) Explain file allocation methods in detail. **10**
   (b) What are the different classes of failure in RPC ? How are they handled ? **10**

5. (a) Explain various disc scheduling algorithms. Explain the criteria for selecting the best disc scheduling algorithm. **10**
   (b) Differentiate the following :— **10**
   (i) Process *v/s* Thread
   (ii) IO chanel *v/s* CPU.

6. (a) What is deadlock ? What are the conditions to cause a deadlock and explain various deadlock recovery mechanism ? **10**
   (b) What is NTFS ? How windows 2000 uses NTFS ? **10**

7. Write short notes on (any **four**) :— **20**
   (a) RAID
   (b) Multi programmed Batch System
   (c) OS as a resource manager
   (d) Process state transition diagram
   (e) File directories.
   (f) Segmentation.

T.E. Com / Sem VI / Rev .
Data warehousing & Mining

Con. 3881-10. **(REVISED COURSE)** **AN-4472**

(3 Hours) **[Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.

1. (a) Define Data Warehouse. Explain the architecture of data warehouse with suitable block diagram. **10**
   (b) Explain data mining as a step in KDD. Give the architecture of typical DM system. **10**

2. (a) How are top-down and bottom-up approaches for building data warehouse differ ? Discuss the merits and limitation of each approach. **10**
   (b) What is K-means clustering ? Confer the K-means algorithm with the following data for two clusters. Data set { 10, 4, 2, 12, 3, 20, 30, 11, 25, 31 } **10**

3. (a) Give information package for recording information requirement for "Hotel Occupancy" considering dimensions like time, Hotel etc. Design star schema from the information package. **10**
   (b) Explain HITS algorithm. **10**

4. (a) What is Classification ? What are the issues in classification ? Apply statistical based algorithm to obtain the actual probabilities of each event to classify the new tuple as a tall. Use the following data – **10**

Person ID	Name	Gender	Height	Class
1	Kristina	Female	1·6 m	Short
2	Jim	Male	2 m	Tall
3	Maggi	Female	1·9 m	Medium
4	Marya	Female	2·1 m	Tall
5	Stephanie	Female	1·7 m	Short
6	Bob	Male	1·85 m	Medium
7	Catherine	Female	1·6 m	Short
8	Dave	Male	1·7 m	Short
9	Wilson	Male	2·2 m	Tall

   (b) Define Metadata. What are the different types of metadata stored in a data warehouse ? Illustrate with a simple customer sales data warehouse. **10**

[TURN OVER

5. (a) What is Clustering Techniques ? Discuss the Agglomerative algorithm using following data and plot a Dendrogram using single link approach. The following figure contains sample data items indicting the distance between the elements :– **10**

Item	E	A	C	B	D
E	0	1	2	2	3
A	1	0	2	5	3
C	2	2	0	1	6
B	2	5	1	0	3
D	3	3	6	3	0

(b) All electronics company have sales deptartment Sales consider three dimensions namely **10**

(i) Time (ii) Product (iii) Store.

The schema contain a central fact table sales with two measures.

(i) dollars–cost and (ii) units-sold

Using the above example describe the following OLAP operations :–

(i) Dice (ii) Slice (iii) Roll-up (iv) Drill-down

6. (a) Explain ETL of data warehousing in detail. **10**

(b) Consider the following transactions :– **10**

TID	Items
01	1, 3, 4, 6
02	2, 3, 5, 7
03	1, 2, 3, 5, 8
04	2, 5, 9, 10
05	1, 4

Apply the Apriori Algorithm with minimum support of 30% and minimum confidence of 75% and find the large item set L.

7. Write short notes on any **four** :– **20**

(a) Trends in data warehousing

(b) Decision tree based classification approach

(c) Key restructuring

(d) Crawlers

(e) Web personalization.

T.E. Com / Sem VI Rev
Advanced Microprocessor

44 : 1st half.10-AM(K)
Con. 3500-10.

(REVISED COURSE)

AN–4477

(3 Hours)

[Total Marks : 100

N.B.: (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.

1. (a) Draw the block diagram of the 80386 DX processor and explain each block in brief. **10**
   (b) Differentiate segmentation in real mode and in protected mode. **5**
   (c) Explain how the flusing of pipeline problem is minimized in pentium architecture. **5**

2. (a) Enlist the instruction pairing rules for U and V pipeline in pentium. **5**
   (b) List the steps of "Instruction Issue Algorithm" in pentium. **5**
   (c) Draw and explain pentium processor architecture. Highlight architectural features. **10**

3. (a) Explain dynamic branch prediction logic of pentium processor. **10**
   (b) Differentiate between pentium and pentium pro-processors w.r.t. generation, overclocking feature, core pipeline stages, no. of transistors, address bits main memory size, L2 cache, SMP support. **10**

4. (a) Compare super SPARC and ultra SPARC processors. Draw the architecture of super SPARC and explain. **10**
   (b) Draw and explain various instruction formats of SPARC processor. **10**

5. (a) Explain cache organisation of pentium. **10**
   (b) State the features of PCI bus. Draw a work station based on PCI bus and explain. **10**

6. (a) List the features of each ISA bus version namely 8 bit, 16 bit and 32 bit EISA. **10**
   (b) Explain floating point pipeline stages of pentium processor in brief. **10**

7. Write short notes on the following :— **20**
   (a) Layered architecture of SCSI
   (b) USB
   (c) Data types supported by SPARC
   (d) Standard and burst bus cycles of pentium.

T.E. Com / Sem VI / old.

web technology.

3-p3-upq-Con No. File

Con. 3916-10. **(OLD COURSE)** **AN–4753**

(3 Hours) **[Total Marks : 100**

N.B.: 1) Attempt any five questions only.
2) Assume data if necessary and mention it clearly.

1. (a) Explain types of CSS with example. (6)
(b) Write a note on (a) Declaration tag (b) Expression tag (d) Scriptlet tag (e) Action tag. (10)
(d) Compare HTTP and FTP (4)

2. (a) Write a HTML code which includes Tables, Hyperlink, Character formatting, order and unordered list to display your Resume. (10)
(b) Explain all the built-in objects in ASP. (10)

3. (a) Write HTML code to design a form with buttons red, green, blue and image. (10)
Write JavaScript code that will change the background color and background image of the page when user clicks on the particular button.
(b) Explain Servlet life cycle in detail. (10)

4. (a) Write HTML code to accept input from the user for course registration. (10)
Input will include Name, Age and Email-id.Write code for validating input data.
(b) Explain frameset, frame, noframe, iframe tags, scrolling and frame border with example. (10)

5. (a) Explain the XML with example. (5)
(b) How to create and retrieve cookies in ASP? (5)
(c) Explain JavaScript built-in objects with method and description. (10)

6. (a) How is JSP request processed by a Web browser? Explain with diagram . (10)
(b) Write a program in JSP to display system date and time. (5)
(c) Explain Telnet with example and URL with its type. (5

7. (a) Explain various online payment methods with example. (8)
(b) Write ASP code to read and display empnum, empname, and salary from HTML form. Explain database connectivity. (6)
(c) Explain in brief E-commerce and Internet banking. (6)
