T.E. Computer Sem-VI (Rev) May 2012

25 : 1st half-12-(j)JP

Con. 4044-12.

GN–7202

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

Lib

Sys. Progr. & complier construction

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

1. Answer the following :— **20**
   (a) What is System Software and application software ?
   (b) What is the use of ORG (ORIGIN) ?
   (c) What is positional parameter in macro ?
   (d) Differentiate between Parse tree and Syntax tree.

2. (a) For a regular expression (0+1)*01, construct an NFA for this expression and convert this NFA into DFA. **10**
   (b) Explain various phases of complier with suitable example. **10**

3. (a) Explain two pass assembler with flowchart. **10**
   (b) What are different functions of Loader ? Explain difference between Linkage editor and Linking loader. **10**

4. (a) Test whether following grammar is LL (1) or not. Construct LL (1) Parse table. **10**

   $S \longrightarrow AB \mid g\ Da$
   $A \longrightarrow ab \mid c$
   $B \longrightarrow dC$
   $C \longrightarrow gC \mid g$
   $D \longrightarrow fD \mid g$

   (b) Explain rantime storage organization in detail. **10**

5. (a) Draw Syntax tree and Directed Acylic Graph (DAG) for expression **10**
   $(a * b) + (c - d) * (a * b) + b$
   (b) What is binding ? Explain Static and dynamic binding. **10**

6. (a) Explain two pass macro processor with flowchart and databases. **10**
   (b) Explain various forms of intermediate code used by compiler. **10**

7. Write short notes on :— **20**
   (a) SPARC assembler
   (b) LEX and YACC
   (c) Debug monitor
   (d) Macro assembler.

Write short note on the following :—

Con. 3736-12.

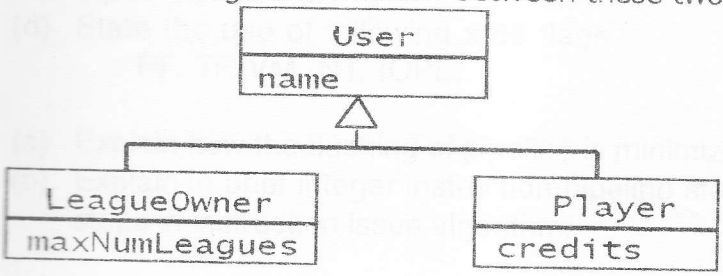
GN–7214

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

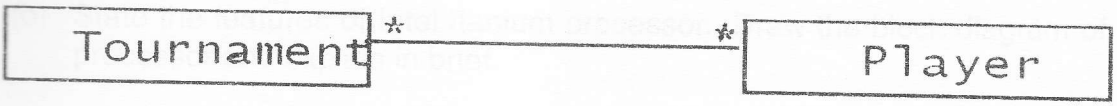
Obje Orien. Softw. Eng

Q1 For Hospital Management Information System: (20)
a. Write down the functional and non-functional requirement.
b. Draw Use Case Diagram.
c. Draw Class Diagram.

Q2 A) Realized Inheritance to database table for the given model. (12)
1> Do Vertical Mapping.
2> Do Horizontal Mapping.
3> Advantage and tradeoff between these two methods.



Q2 B) Following is the Bidirectional many-to-many association - Object design model before transformation. (8)



Write Java code after transformation for Mapping Association.

Q3 A) Explain in detail about different levels of CMM with their characteristics. (10)

Q3 B) Explain all phases of the SDLC. (10)

Q4 A) Explain with an example Cohesion and Coupling. (10)

Q4 B) Explain in detail RAD software life cycle model. (10)

Q5 A) Explain and compare FTR and Walkthrough. (10)

Q5 B) What is SCM? Explain in detail Software Configuration Item identification. (10)

Q6 A) Compare Forward Enginering, Reverse Engineering and Re-Engineering. (10)

Q6 B) Explain in detail COCOMO model. (10)

Q7) Short Notes on any two: (20)
a. Integration Testing
b. Types of Maintenance
c. Design Pattern
d. Risk Management

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7. Write short note on the following —

(3 Hours) [Total Marks : 100

N. B. : (1) Question No. 1 is **compulsory**.
(2) Out of remaining **six** questions, attempt any **four** questions.
(3) In **all 5** questions to be **attempted**.
(4) **Figures** to the **right** indicate **marks**.

1. (a) Enlist the instruction pairing rules of U and V pipeline in Pentium. 5
(b) Write short note on Intel's Net burst micro architecture. 5
(c) Draw the data flow graph for computation of integer power $Z = X^n$ of an input number X. 5
(d) State the use of following x 86 flags : 5
RF, TF, VM, NT, IOPL.

2. (a) Explain how the flushing of pipeline is minimized in Pentium architecture. 10
(b) Explain in brief integer instruction pipeline stages of Pentium processor. List the steps in instruction issue algorithm. 10

3. (a) Differentiate between Pentium and Pentium pro-processors wrt size of address/data bus, addressable memory, virtual memory, L2 cache, generation, SMP support, integer pipeline stages, no. of integer pipes, floating point pipeline stages, no. of floating point pipes. 10
(b) State the features of Intel Itanium processor. Draw the block diagram of Itanium processor and explain in brief. 10

4. (a) Explain segmentation and paging in protected mode of 80386 processor. 10
(b) Explain the Debug registers of 80386DX processor. 10

5. (a) Consider the following reservation table for a unifunction pipeline :—

	0	1	2	3	4	5	6	7	8
S1	X								X
S2		X	X					X	
S3				X					
S4					X	X			
S5							X	X	

(i) Find the forbidden set of latencies 2
(ii) State the collision vector 1
(iii) Draw the state transition diagram 5
(iv) List simple cycles and greedy cycles 1
(v) Calculate MAL (minimal average latency). 1

(b) Explain static data flow computer architecture with example. 10

6. (a) Differentiate between real mode and protected mode of X 86 family. 10
(b) Explain Cache organization of Pentium. 10

7. Write short note on the following :—
(a) Structure of segment descriptor 5
(b) USB 5
(c) Layered architecture of SCSI 5
(d) EISA. 5

Con. 4543-12. A C·N· GN–8627

(3 Hours) [Total Marks : 100

N.B. (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions from remaining.
(3) Draw diagrams wherever **required**.

1. (a) Explain different protocols used in each layer of TCP/IP protocol suite. **10**
(b) Explain Autonomous system and list routing protocols used inside and across Autonomous system. **5**
(c) Explain different traffic descriptor used in ATM. **5**

2. (a) List connecting devices used in each layer. Explain each with example. **10**
(b) What are different multicast routing protocols ? Explain DUMRP in detail. **10**

3. (a) Draw and explain functions of ATM layers. Explain in detail AAL1 and AAL5. **10**
(b) Explain how network management is done using SNMP, SMI and MIB. **10**

4. (a) Explain RIP unicast routing protocol with example. **10**
(b) Explain the SONET frame structure. **10**

5. (a) Describe different delay components in communication network. Explain M/M/1 queuing system. **10**
(b) What is RTP ? Explain RTP frame format in detail. **10**

6. (a) Explain how DWDM achieves high data rate transmission. What are advantages and disadvantages of DWDM over SONET ? **10**
(b) Explain different delay components in communication networks. Which parameters can affect the delay. **10**

7. Write short note on :— (any **two**) **20**
(a) X·25
(b) Network Address Translation
(c) RSUP
(d) IP over ATM.

AGJ 1st half 1

Con. 4721-12. **GN–9218**

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

Data Warehouse Mining

N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** out of the **remaining**.
(3) Draw suitable diagrams wherever **necessary**.
(4) Assume **suitable** data (if required)

1. (a) Define a data warehouse. Explain what is the need for developing a data warehouse and hence explain its architecture. **10**
   (b) Compare OLTP and OLAP systems. Explain the steps in KDD with a suitable block diagram. **10**

2. (a) What is meant by ETL ? Explain the ETL process in detail. **10**
   (b) State and explain the various schemas used in data warehousing with examples for each of them. **10**

3. (a) Differentiate between top down and bottom-up approaches for building a data warehouse. Explain the advantages and disadvantages of each of them. **10**
   (b) Define what is meant by information package diagram. For recording the information requirements for "hotel occupancy" having dimensions like time, hotel etc, give the information package diagram for the same, also draw the star schema and snow flake schema. **10**

4. (a) What is meant by meta data ? Explain with an example. Explain the different types of meta data stored in a data warehouse. **10**
   (b) Explain what is meant by association rule mining. For the table given below perform opriori algorithm. Also – **10**
      (i) Determine the k-item sets (frequent) obtained.
      (ii) Justify the strong association rule that has been determined i.e. specify which is the strongest rule obtained.

      The table is as follows -

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

      Assume Minimum support of 30% and
      Minimum confidence of 75%.

[TURN OVER

5. (a) Explain dimension modelling in detail. **10**
   (b) Explain what is meant by clustering. State and explain the various types with suitable example for each. **10**

6. (a) What is meant by classification ? Justify why clustering is said to be supervised learning. How is the classifier accuracy determined and also explain its various types. **10**
   (b) What is meant by market-basket analysis ? Explain with an example. State and explain with formula the meaning of the terms :– **10**
      (i) Support
      (ii) Confidence
      (iii) Iceberg queries.

   Hence explain how to mine multi level association rules from transaction databases, with example for each.

7. Write short notes on (any **two**) :– **20**
   (a) OLAP operations
   (b) Data warehouse deployment and maintenance
   (c) Attribute oriented induction
   (d) Web mining.
