T.E. comp. VI (R) May 2013

Re-Val

AGJ 1st half (f+) 4

Con. 9723-13.

T.E (comp) (VI)
Advance computer N/W

29/5/13

GS–1219

(3 Hours)

[ Total Marks : 100

N.B. : (1) Answer any **five** questions out of **seven**.
(2) **Each** question carries **equal** marks.
(3) No question is compulsory

1. (a) Explain ATM Adaptation layer giving details of different classes of traffic. **10**
   (b) Explain X·25 protocol stack, detailing operation of X·25/3 (Network layer). **10**

2. (a) What are the advantages of MPLS compared to IP over ATM ? Explain MPLS switching using level stacking. **10**
   (b) Explain SNMP MIB structure by giving example. Also explain different types of messages exchanged. **10**

3. (a) Explain how reservation in the Intserv model is carried out using RSVP protocol. What are different RSVP messages sent ? **10**
   (b) Explain the operating principle of DWDM technology. **10**

4. (a) What are the requirements of a Backbone Network Design ? **10**
   (b) What is the role of subnet mask in classless as well as classbase IP routing ? Explain with the help of examples. **10**

5. (a) How traffic characteristics affect the network design while doing capacity planning ? **10**
   (b) Explain why unicasting routing protocols are not used for multicasting. Explain any one multicasting routing protocol in detail. **10**

6. (a) Write a connection oriented socket program for client server communication in either C++ or Java. **10**
   (b) Compare and contrast IP V4 with IPV6. **10**

7. Short note on any **four** :– **20**
   (a) H. 323
   (b) SONET/SDH
   (c) M/M/1 Queuing theory
   (d) BGP
   (d) B-ISDN reference model.

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Computer Sem VI

SPCC

125 : 1ST HALF-13 (f)-JP

**GS–1078**

Con. 9175–13.

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

**N.B.** (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Assume **suitable** data if **necessary** and justify the **same**.
(4) **Figures** to **right** indicate **full** marks.

1. (a) Differentiate between Application program and system program. **5**
Indicate the order in which following system programs are used, from developing program upto its execution.
Assemblers, loaders, linker, macroprocessor, complier, editor.
(b) Eliminate left recursion present in following grammer (Remove Direct and Indirect recursion both) **5**
$S \longrightarrow Aa \mid b$
$A \longrightarrow Ac \mid Sd \mid \in$
(c) What is activation record ? Draw the diagram of General Activation record and explain the purpose of different fields of an activation record. **5**
(d) What are the different functions of loader explain in brief. **5**

2. (a) With reference to assembler explain the following tables with suitable examples : **10**
(i) POT
(ii) MOT
(iii) ST
(iv) LT
(b) Let L be the language consisting of strings of a's and b's having same number of a's and b's :
(i) Construct LL (1) grammer for L **4**
(ii) Construct a predictive parsing table for the grammer obtained in (i). **6**

3. (a) Explain different psudo-ops used for conditional macro expansion, along with example. **10**
(b) What are the different phases of compiler ? Illustrate compilers internal presentation of source program for following statement after each phase **10**
position = initial + rate * 60

4. (a) Explain working of a direct linking loader with a proper example. Clearly show the entries in different databases built by the direct linking loader. **10**
(b) Generate three address code for given expression **10**

```
while (a < b) do
    if (c < d) then
        x = y + z
    else
        x = y – z
```

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Computer Sem VI

SPCC







**Con. 9175-GS-1078-13.**

5. (a) For the given grammer below, construct operator precedence relations matrix, assuming *, + are binary operators and id as terminal symbol and E as non terminal symbol. **10**

$E \longrightarrow E + E$

$E \longrightarrow E * E$

$E \longrightarrow id$

Apply operator precedence parsing algorithm to obtain skeletal syntax tree for the statement

id + id * id

(b) Explain role of code optimization in compiler designing with suitable example. **10**

6. (a) For regular expression (a | b)* abb construct NFA and construct it into DFA. **10**

(b) With reference to stack allocation and heap allocation explain runtime storage organization. **10**

7. (a) Write a note on JAVA compiler environment. **5**

(b) Explain synthesized and Inherited attributes used in syntax directed definitions. **5**

(c) Explain DAG. **5**

(d) Find first and follow set for given gramer below : **5**

$E \longrightarrow TE'$

$T \longrightarrow FT'$

$F \longrightarrow (E)$

$E' \longrightarrow + TE' \mid \in$

$T' \longrightarrow * FT' \mid \in$

$F \longrightarrow id$

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T.E. COMP VI SEM OOSE 1/1

11/5/2013

74 : 1st half.13-shilpa(h)

Con. 7265-13. GS-9762

(3 Hours) [Total Marks : 100

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

1. Consider the following online shopping portal :– **20**
A customer visits the online shopping portal. A customer may buy item or just visit the page and logout. The customer can select a segment, then a category and brand to get different products in the desired brand.
The customer can select product for purchasing. The process can be repeated for more items. Once the customer finishes selecting the product/s, the cart can be viewed. If the customer wants to edit the final cart it can be done here. For final payment the customer has to login the portal. If the customer is visiting for the first time he must register with the site, else the customer must use the login page to proceed.
Final cart is submitted for payment and card details and address are to be confirmed by the customer. Customer is confirmed with a shipment Id and delivery of goods within 15 days. Draw a detailed class diagram and use case diagram for the above case study.

2. (a) "Requirements are fixed". Which model will you perfer and why ? **5**
(b) Write the advantages of PERT chart. **5**
(c) Explain COCOMO used for software estimation. **5**
(d) Explain Task Network. **5**

3. (a) What is an analysis model ? List the objects of analysis model ? How do you identify these objects ? **10**
(b) Explain Agile process with its advantages. Explain any one Agile process model. **10**

4. (a) How to map following associations to code ? **10**
(i) Realization of unidirectional one-to-one associations
(ii) Bidirectional one-to-one associations
(iii) Bidirectional one-to-many associations
(iv) Generalisation.
(b) Explain the object oriented testing strategies. **10**

5. (a) Draw an activity diagram for any one scenario of Airline reservation system. **10**
(b) Explain coupling and cohesion. How are the concepts of coupling and cohesion useful in arriving at good software design ? **10**

6. (a) What is software quality Assurance ? Explain different quality matrices. **10**
(b) What is the need of software maintenance ? Explain types of software maintenance. **10**

7. Write short notes on (any **two**) :– **20**
(a) Software configuration management
(b) Project scheduling and Tracking

T.E. COMP SEM VI ADVANCED µP 1/1

VT-F.H.Exam. May-13-14

**Con. 7352–13.** **GS–9933**

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

**N.B. :** (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Draw **neat** labelled **diagram** wherever **necessary**.
(4) Answers to **each** new questions to be started on a **fresh page**.

1. (a) Draw the block diagram of 80386 DX processor and explain each block in brief. **10**
   (b) Differentiate segmentation in real mode and in protected mode. **5**
   (c) Discuss the register set of 80386 processor. **5**

2. (a) What are the different types of instruction Hazards ? Explain in detail. **10**
   (b) Draw and explain Pentium processor architecture. **10**

3. (a) Explain dynamic branch prediction logic of Pentium processor. **10**
   (b) Explain different stages of Integer pipeline and floating point pipeline of Pentium processor. **10**

4. (a) Compare Super SPARC and Ultra SPARC processor. Draw and explain in brief the architecture of Super SPARC. **10**
   (b) Explain the Itanium processor with respect to instruction format, core pipeline stages and the functionality. **10**

5. (a) Explain the Cache Organization of Pentium processor. **10**
   (b) Draw and explain the state diagram of MESI transitions that occur within the Pentium's data Cache memory. **10**

6. (a) Explain EFLAGS bits of Pentium. **10**
   (b) State the features of PCI bus. Draw a work station based on PCI bus and explain. **10**

7. Write a short note on (any **two**) :– **20**
   (a) Layered architecture of SCSI
   (b) USB
   (c) VESA.

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501 : Con. No.-JP

Con. 9998–13. TE (comp) VI DW & mining 3/6/13 GS–1369 1/2

(3 Hours) [ Total Marks : 100

**Note: 1. Question 1 is compulsory**
**2. Answer any 4 out of the remaining questions.**
**3. Answers to sub questions must be written together**

Q.1 (a) What are differences between Data Warehouse and Data Mart ? (05)

(b) For a Supermarket Chain consider the following dimensions, namely Product, store, time, promotion. The schema contains a central fact table, sales facts with three measures unit_sales, dollars_sales and dollar_cost. Design star schema for this application. (05)

(c) Calculate the maximum number of base fact table records for warehouse with the following values given below : (05)

- Time period: 5 years
- Store: 300 stores reporting daily sales
- Product: 40,000 products in each store (about 4000 sell in each store daily)

(d) Illustrate how the supermarket can use clustering methods to improve sales. (05)

Q2. Define the following terms by giving examples

(a) Factless fact tables
(b) Snowflake Schema
(c) Web Structure Mining
(d) Concept Hierarchy (5 X 4 =20)

Q.3 (a) Apply Agglomerative Hierarchical Clustering and draw single link and average link dendrogram for the following distance matrix. (10)

| | A | B | C | D | E |
|---|---|---|---|---|---|
| A | 0 | 2 | 6 | 10 | 9 |
| B | 2 | 0 | 3 | 9 | 8 |
| C | 6 | 3 | 0 | 7 | 5 |
| D | 10 | 9 | 7 | 0 | 4 |
| E | 9 | 8 | 5 | 4 | 0 |

(b) Explain the Page Rank technique with algorithm. (10)

Q 4.(a) Consider a data warehouse for a hospital, where there are three dimensions: (1) Doctor (2) Patient (3) Time; and two measures: (1) Count & (2) Fees; For this example create a OLAP cube and describe the following OLAP operations: (1) Slice (2) Dice (3) Rollup (4) Drill Down (5) Pivot (10)

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TE (comp) VI DWX mining 3/6/13 2/2



(b) Consider the following transaction database:

| TID | Items |
|---|---|
| 01 | A, B, C, D |
| 02 | A, B, C, D, E, G |
| 03 | A, C, G, H, K |
| 04 | B, C, D, E, K |
| 05 | D, E, F, H, L |
| 06 | A, B, C, D, L |
| 07 | B, I, E, K, L |
| 08 | A, B, D, E, K |
| 09 | A, E, F, H, L |
| 10 | B, C, D, F |

Apply the **Apriori** algorithm with minimum support of 30% and minimum confidence of 70%, and find all the association rules in the data set. **(10)**

**Q 5.(a)** A simple example from the stock market involving only discrete ranges has Profit as categorical attribute, with values {up, down}. and the training data is:

| AGE | COMPETITION | TYPE | PROFIT |
|---|---|---|---|
| Old | Yes | software | Down |
| Old | No | software | Down |
| Old | No | hardware | Down |
| Mid | Yes | software | Down |
| Mid | Yes | hardware | Down |
| Mid | No | hardware | Up |
| Mid | No | software | Up |
| New | Yes | software | Up |
| New | No | hardware | Up |
| New | No | software | Up |

Apply the decision tree algorithm and show the generated rules. **(10)**

**(b)** Describe the steps of the ETL (Extract - Transform - Load) cycle. **(10)**

**Q6. (a)** Define multidimensional and multilevel association mining. **(10)**

**(b)** Explain the role of Meta data in a data warehouse. **(10)**

Q7. Write detailed notes on:

(a) Data Warehouse Architecture

(b) K-Means Clustering **(10 X 2 = 20)**