T.E Sem VI (CBGS) Computer. 19/11/15

System Prog. & Compiler Construction

QP Code : 6266 (1/1)

(3 Hours) [Max Marks 80

N.B.
(1) Question no. 1 is compulsory.
(2) Attempt any 3 from the remaining questions.
(3) Assume suitable data if necessary.
(4) Figures to right indicate full marks.

Q1(a)	Differentiate between Application program and system program. Indicate the order in which following system programs are used, from developing program upto its execution. Assemblers , Loaders , Linker , Macro processor , compiler , Editor	5
Q1(b)	Elliminate Left recursion in the following grammar (Remove Direct and Indirect recursion) $S \rightarrow Aa \mid b \quad A \rightarrow Ac \mid Sd \mid \varepsilon$	5
Q1(c)	What is an activation record? Draw diagram of General Activation record and explain the purpose of different fields of an activation record	5
Q1(d)	What are the different functions of loader.	5
Q2(a)	For a given grammar below , construct an operator precedence relation matrix , assuming * , + are binary operators and *id* as terminal Symbol and E as non-terminal. $E \rightarrow E + E \quad E \rightarrow E * E \quad E \rightarrow id$ Apply operator precedence parsing algorithm for the statement id + id * id	10
Q2(b)	Explain the role of code optimization in compiler designing ? Explain Peephole optimization along with an example.	10
Q3(a)	Write a note on JAVA compiler environment.	5
Q3(b)	Write a brief note on Design of an Editor.	5
Q3(c)	Explain synthesized and Inherited attributes used in Syntax Directed Definition.	5
Q3(d)	Find FIRST and FOLLOW Set for given grammar below $E \rightarrow T\,E' \quad E' \rightarrow +\,T\,E' \mid \varepsilon$ $T \rightarrow F\,T' \quad T' \rightarrow *\,F\,T' \mid \varepsilon$ $F \rightarrow (E) \quad F \rightarrow id$	5
Q4(a)	Explain Design of Dynamic Linking Loader along with example	10
Q4(b)	For the following grammar construct LL(1) parser table $S \rightarrow F \quad S \rightarrow (S-F) \quad F \rightarrow a$ And Parse the string (a – a) . Show contents of stack and i/p buffer and action taken after each step.	10
Q5(a)	Explain different pseudo-ops used for conditional macro expansion along with an example	10
Q5(b)	What are the different phases of Compiler ? Illustrate compilers internal representation of source program for following statement after each phase Position := initial + rate * 60	10
Q6(a)	With reference to Assembler explain following tables with suitable example . (i) POT , (ii) MOT (iii) ST (iv) LT	10
Q6(b)	Explain Backpatching with an example.	10

T.E. (sem-VII) (CBGS) (computer)

Distributed Database

QP Code : 6351

(3 Hours) [Total Marks: 80]

N.B. : (1) Question **No. 1 is compulsory.**

(2) Answer any **three** out of the **remaining** questions.

Q 1.

a) Define Client Server and Peer to Peer distributed system architecture. [05]

b) Give two applications of XML [05]

c) What do you mean by serializabilty in a distributed database? [05]

d) Explain the concept of a "semi-join" using an example. [05]

Q 2. Using a snapshot of the following centralized schema of a database:

- Departments*(DN, DName, Budget, Location)*
- Employees*(EN, EName, Title, DNo)*
- Salary*(Title, Salary)*

a) Show 2 examples of horizontal fragmentation with fragmentation rules [05]

b) Show 2 examples of vertical fragmentation with fragmentation rules [05]

c) Show 2 examples of derived fragmentation with fragmentation rules [05]

d) Demonstrate the correctness of your fragmentation rules. [05]

Q 3.

(a) Consider a employee management database which maintains entries for employees in a company. Employees may be programmers, managers, designers and testers. Appropriate information is to be maintained for each employee along with their address, salary, etc. (You can make any other reasonable assumptions)

I. Give the DTD for the XML schema for the described system. [05]

II. Write the following query in XQuery [05]

"Find programmers who have worked in projects coding at least two different languages in one year."

(b) Describe query processing in a distributed database. [10]

Q 4.

(a) Explain the different types of transparencies in a Distributed Database System [10]

(b) Describe clearly the Three Phase Commit (3PC) algorithm? [10]

Q 5.

a) Explain two concurrency control algorithms for a distributed database system [10]

b) What are the issues for query processing in a heterogeneous database? [10]

Q 6. Write Short notes on:

a) Heterogeneous Database Architecture. [10]

b) Distributed Deadlock Management. [10]

MD-Con. 9485 -15.

TE (Sem - VI) CBGS, Comp. Engg.

Mobile Communication and computing

Q.P. Code : 6393

(3 Hours) [Total Marks : 80

Date : 8-12-15

NB :

1. Q1 is compulsory.
2. Attempt any 3 questions out of the rest.

Q1)

a) Draw and Explain Electromagnetic Spectrum for communication. (5)
b) Explain agent Advertisement in Mobile IP (5)
c) Explain the difference between Adhoc Network and infrastructure based wireless networks (5)
d) Explain the U_m interface of GSM (5)

Q 2)

a) Explain how a Bluetooth network is established using baseband state transitions. (10)

b). Explain Mobile Call termination in GSM, detailing the need and the use of MSRN , IMSI, TMSI no.s (10)

Q 3)

a) Compare various IEEE 802.11x standards. (a/b/g/i/n etc) (10)

b) Explain the functioning of Mobile -TCP (10)

Q 4)

a) Why does the Mobile IP packet required to be forwarded through a tunnel. Explain Generic techniques of encapsulation of Mobile IP packet (10)
b) Explain differences in GSM, GPRS and UMTS. (10)

Q 5)

a) Explain UMTS architecture. Explain UTRA –FDD and TDD modes (10)
b) Explain Security issues in wireless communication, typically for cellular networks (10)

Q 6) Short Notes on any 4 (20)

a) Satellite Communication
b) Android framework
c) HIPERLAN 1 Vs HIPERLAN2
d) PSTN
e) Cellular IP
