/CMPN/Sem-VI (CBSGS)/System Programming and Compiler Construction

May-2016

Q.P. Code : 581500

(3 Hours) **[Total Marks : 80**

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

1. (a) What is the role of an automata in compiler design. **5**
   (b) Elliminate Left recursion in the following grammar (Remove Direct and Indirect recursion) **5**
   $S \rightarrow Aa \mid b$
   $A \rightarrow Ac \mid Sd \mid \varepsilon$
   (c) What is an activation record? Draw diagram of General Activation record and explain the purpose of different fields of an activation record. **5**
   (d) What is the difference between Compiler and Interpreter. **5**

2. (a) Explain with an example Quadruples , Triples, Indirect triples. **10**
   (b) What is the difference between Dynamic Loading and Dynamic Linking explain with an example **10**

3. (a) Write a note on JAVA compiler environment. **5**
   (b) Write a brief note on Design of an Editor. **5**
   (c) Explain synthesized and Inherited attributes used in Syntax Directed Definition. **5**
   (d) Find FIRST and FOLLOW Set for given grammar below **5**
   $E \rightarrow T\,E'$ $E' \rightarrow +\,T\,E' \mid \varepsilon$
   $T \rightarrow F\,T'$ $T' \rightarrow *\,F\,T' \mid \varepsilon$
   $F \rightarrow (E)$ $F \rightarrow id$

4. (a) Explain different Code Optimization technics along with an example. **10**
   (b) For the following grammar construct LR(0) parser table **10**
   $S \rightarrow aCDe$
   $C \rightarrow Cbc$
   $C \rightarrow b$
   $D \rightarrow d$
   And Parse the string abbcbcde. Show contents of stack and i/p buffer and action taken after each step.

5. (a) Draw and explain DAG and represent the following example with it. **10**
   (a / b) + (a / b) * (c * d)

   (b) What are the different phases of Compiler ? Illustrate compilers internal representation of source program for following statement after each phase. **10**
   Amount = P + P * N * R / 100

6. (a) With reference to Assembler explain following tables with suitable example. **10**
   (i) POT (ii) MOT
   (iii) ST (iv) LT

   (b) What are the different issues in design of Code Generator ? Explain with an example. **10**

CMPN / Sem-VI (CBSGS) / Software Engineering / May-2016

Q.P. Code : 581601

Time: 3 Hrs Max Marks: 80

N.B.: (1) Question No. 1 is compulsory.
(2) Attempt any three questions out of remaining five.
(3) Figures to the right indicate full marks.
(4) Assume suitable data wherever required.

1. Develop the SRS for the following scenario :- [20]
A school has one or more departments. Department offers one or more subjects. A particular subject will be offered by only one department. Department has instructors and instructors can work for one or more departments. Students can enrol in up to 5 subjects in a school. Instructor can teach up to 3 subjects. The same subject can be taught by the different instructors. Students can be enrolled in more than one school.
SRS for the school should include the following:
   a. Product perspective
   b. Scope and objective
   c. Functional requirements
   d. Non-Functional requirements

2. (a). Explain and compare FTR and walkthrough. [10]
   (b) Explain the process of CMM. [10]

3. (a) Explain coupling & cohesion. Explain different types of coupling & cohesion. [10]
   (b) What are Agile process and its advantages? Explain any one Agile process. [10]

4. (a) Explain the change control and version control activities in SCM. [10]
   (b) Differentiate between black box testing and white box testing. Explain in detail about any one testing tool. [10]

5. (a) What are the different types of maintenance and also explain steps for creating a maintenance log? [10]
   (b) What is user interface design process? Explain with one example. [10]

6. Write short notes on(any two)
   (a) Risk management. [10]
   (b) Reverse Engineering. [10]
   (c) Service-Oriented Software Engineering. [10]
   (d) Object oriented testing methods. [10]

Sem-VI (CBSGS)/CMPN/Distributed Databases/May-16.

Q.P. Code : 581700

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question No.1 is Compulsory.
(2) Attempt any 3 questions out of the rest
(3) Figure to the right indicate full marks.
(4) All question carry equal marks.

1. a) What are advantages and disadvantage of Distributed DBMS **5**
   b) What are the features of DDBMS? **5**
   c) Explain the basic Timestamp Ordering Algorithm. **5**
   d) What are the objectives of Distributed Query Processing? **5**

2 a) What is horizontal and vertical fragmentation? What are the types of horizontal fragmentation. Perform horizontal fragmentation for student relation as given below. **10**
Also give the correctness criteria for it.
Student (Studentrollno., Student Name, Course Name, Course Fees, year)
   b) What are the various kinds of transparencies in distributed database design? Explain each with the help of an example **10**

3 a) What are the various concurrency control techniques? Compare Lock based Concurrency Control strategies in detail. **10**
   b) Compare Distributed Deadlock prevention to Distributed Deadlock Avoidance. Explain one scheme of Distributed deadlock Detection and Recovery. **10**

4 a) A banking database should contain the customer's information along with the types of accounts customer is maintatining. Customer information is its full profile information along with his current address, PAN ID, adhar Card no. included and account information should include type of account (Saving, fixed, demat, recuring, current), date and time of access and the transactions details. **10**
      i) Write the DTD rules for the above XML documents.
      ii) Create an XML schema for the above XML document. **10**
   b) What are homogenous and heterogeneous database. Give the architecture of heterogeneous databases along with some query processing issues.

TURN OVER

Q.P. Code :

5 a) What problems can occur in a distributed system due to the failure of link and partitioning of the network? What are the ways by which recovery can take place? **10**

b) Explain the phases of query processing in distributed database. **10**

20

6 Answer any two:

a) Bond Energy Algorithm

b) Design issues of Distributed Database

c) 3PC

d) Transaction management model for distributed System

TE/CMPN/SEM-VI (CBSGS)/Mobile Communication & Comput

MAY-16

Q.P. Code : 581800

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question No.1 is Compulsory.
(2) Attempt any Three questions out of remaining questions.
(3) Make suitable assumptions whenever necessary.

1. a) Explain in short how Hidden Station Problem is Avoided in WLAN. **10**
   b) What are the Deployment issues of WLL? **10**
   c) What are the general problems of satellite signals travelling from a satellite to a receiver ? **10**
   d) Explain how Mobile originated call (MOC) work. **10**
   e) What are the characteristics of SIM ? **10**

2. a) Why is Mobile IP packet required to be forwarded through a tunneL Explain IP-in-IP Techniques of encapsulation of mobile IP packet. **10**
   b) What are the modifications require to an existing GSM network to be upgraded to GPRS, Explain with the help of diagram. **10**

3. a) Explain in detail HIPERLAN/1 physical layer. **10**
   b) Explain in detail4G architecture. **10**

4. a) Explain in detail Bluetooth Protocol Architecture. **10**
   b) What are the security issues in mobile Computing. **10**

5. a) Compare HIPERLAN 2, BLUETOOTH, IEEE 802.11.
   b) What are the different types of Handover in GSM ?Explain in Detail Intra-MSC handover.

6. Write short notes on the following. **20**
   a) Role of SUMR register in satellite roaming.
   b) Android components.
   c) Location management HLR-VLR scheme.
   d) Digital Signature.
