Q.P.Code:11587

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

N.B.: (1) Question No. 1 is compulsory.
      (2) Attempt any three questions out of remaining five questions.

Q1.   (a) Differentiate between system software & application software?   [05]
       (b) Explain the role of finite automata in compiler theory.   [05]
       (c) Explain the various functions of a loader.   [05]
       (d) Compare compilers and interpreters.   [05]

Q2.   (a) With reference to assembler, explain the following tables with suitable example.
       (i) POT   (ii) MOT   (iii) ST   (iv) LT   [10]
       (b) Explain the different code optimization techniques in compiler design.   [10]

Q3.   (a) Explain the different issues in code genetrations.   [10]
       (b) Explain working of direct linking loader with example, showing entries in
           different databases built by DLL.   [10]

Q4.   (a) Construct a predictive parsing table for the grammar : -   [10]
           $E \rightarrow TE'$
           $E' \rightarrow +TE' / E$
           $T \rightarrow FT'$
           $T' \rightarrow *FT' / \epsilon$
           $F \rightarrow (E) / id$
       (b) Explain the different error recovery techniques   [10]

Q5.   (a) Explain the different storage allocation strategies in detail.   [10]
       (b) Differentiate Top-down and Bottom-up parsing techniques. Explain shift
           reduce parser in detail.   [10]

Q6.   (a) Explain the different phases of compiler. Illustrate all these phases for the
           following statement:
               $a = b + c * 5$ [10]
       (b) Write short note on: [10]
           (i) Parameterized Macros
           (ii) YACC

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Q.P. Code :11614

[Time: 3 Hours]   [Marks:80]

Please check whether you have got the right question paper.

N.B: 1.   **Question No.1 is compulsory.**
           2.   **Attempt any three questions out of remaining five.**

Q.1   Develop the SRS for Hospital Management System.   20
       Hospital Management System is a process of implementing all the activities of the hospital in a
       computerized automated way to fasten the performance.
       This system is to maintain the patient details, lab reports and to calculate the bill of the patient. You can
       also manually edit any patient details and issue bill receipt to patient within few seconds.
       SRS for the hospital Management system should include the following:
           a)   Product perspective
           b)   Scope and objective
           c)   Functional requirements
           d)   Non-functional requirements

Q.2 a) Explain cohesion and Coupling. Explain different types with detailed example.   10
     b) Explain in detail Service-Oriented Software Engineering.   10

Q.3 a) Explain what is cyclomatic complexity and different methods to calculate it. Find the cyclomatic   10
         complexity of following code

```
int x, y, power;
float z;
input (x, y );
if (y<0)
  power = - y:
else
power = y;
z = 1;
while (power ! = 0 ){
z =z * x;
power = power – 1;
}
if (y<0)
   z = 1/z;
output (z);
end
```

     b) Explain Risk and its types? Explain the steps involved in setting up or generating RMMM plan.   10

Q.4 a) Consider a software project using Semi-detached mode with 30,000 lines of code. Obtain effort   10
         estimation, Duration estimation and person estimation.

     b) Explain steps in version and change control.   10

                                                                                            (P.T.O)

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Q.5. a) Explain software reverse engineering in detail. 10

    b) What is FTR? Explain the Review guidelines considered during FTR. 10

Q.6.   Write short notes on **any two**:- 20
        (a) Software Configuration Management
        (b) Test Driven Development
        (c) Agile Process Models
        (d) User interface design

10
10

20

(3 Hours)

Total marks : 80

Note:
- Question No. 1 is compulsory.
- Attempt any Three questions out of remaining questions.
- Make suitable assumptions whenever necessary.

Q 1:   [5 X 4]
   a) What do you mean by Distributed Serializability?
   b) What are the objectives of distributed query processing ?
   c) Explain state transition diagram for 3PC.
   d) What are the different types of Fragmentation in distributed databases?

Q 2:
   a) Explain Two-phase Commit Protocol..   [10]
   b) Explain the reference Architecture of tightly coupled Federated MDBS.   [10]

Q 3:
   a) Explain locking-based concurrency control protocols.   [10]
   b) Explain the following transparencies in distributed database design. Data distribution
   transparency, transaction transparency performance transparency, DBMS transparency [10]

Q 4:
   Consider the global schema: [20]
   BOOKS(Book#, Primary_author, Topic, Total_stock, $price)
   BOOKSTORE(Store#, City, State, Zip, Inventory_value)
   STOCK(Store#, Book#, Qty)
   1) Show 2 example of horizontal fragmentation.
   2) Show 2 example of Vertical fragmentation.
   3) Show 2 example of Derived fragmentation.

Q 5:
   a) Explain distributed Deadlock Prevention..   [10]
   b) Give the DTD or XML schema for an xml representation of the following
       nested-relational schema: [05]
       Emp = (ename, ChildrenSet **setof**(Children), SkillSet **setof**(Skills))
       Children = (name, Birthday)
       Birthday = (day, month, year)
       Skills = (type, ExamsSet setoff(Exams))
       Exams = (year, city).
   c) Write a query in XPath on the schema of (Q5 b) to list all skill types in Emp.   [05]

Q 6:
   Write notes on the following. **(any two)**   [10 X 2]
       a) Component Architecture of Distributed DBMS.
       b) Phases of query processing.
       c) 2PC recovery protocols.
       d) Querying and transformation of XML data.

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E| Sem-VI (CBSGS)/CMPN/Mobile comm computing/
M-18

Q.P. Code: 36774

[Time: Three Hours]

[Marks:80]

N.B:
Please check whether you have got the right question paper.
1. **Question No. 1 is compulsory.**
2. **Attempt any three questions out of the remaining questions.**
3. **Make suitable assumptions wherever necessary.**

Q1. A) Discuss multiplexing in wireless communication.   10
    B) Explain the need of specialized MAC in wireless communication.   10

Q2. A) Explain in detail Bluetooth protocol architecture.   10
    B) Explain HIPERLAN 1 MAC sublayer.   10

Q3. A) Explain agent advertisement and discovery registration in mobile networks.   10
    B) Why and how can optimization in mobile IP be achieved.   10

Q4. A) Explain GSM architecture in detail.   10
    B) Explain types of handoffs in mobility management.   10

Q5. A) Explain any two TCP for mobile communication.   10
    B) Explain wireless local loop architecture   10

Q6. Write short notes on (any 02)   20
    a) Cryptographic tools for Security in mobile computing.
    b) GPRS network nodes.
    c) Android layers.
    d) Satellites (GEO and LEO)

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