Examination: November-December 2017 **Date:** 21-11-17
Branch: Computer Engineering **Subject:** SPCC
Class/SEM: TE/VI **Paper Code:** 11586

Examination: November-December 2017 **Date:** 27-11-17
Branch: Computer Engineering **Subject:** SE
Class/SEM: TE/VI **Paper Code:** 22530

Examination: November-December 2017 **Date:** 4/12/2017
Branch: Computer Engineering **Subject:** DD
Class/SEM: TE/VI **Paper Code:** 24230

Examination: November-December 2017 **Date:** 11/12/2017
Branch: Computer Engineering **Subject:** MCC
Class/SEM: TE/VI **Paper Code:** 22992

Q.P.Code:11586

(3 Hours)   Total Marks: 80

N.B.: (1) Question No. 1 is compulsory.
(2) Attempt any THREE questions out of remaining five questions.
(3) In all 4 questions to be attempted.
(4) Assume Suitable data if necessary.
(5) Figures in brackets on the right hand side indicate full marks.

Q1. (a) Define System Programming? State difference between Application Programs
and System programs?
(b) Explain different types of text editors in brief.   (05)
(c) Explain the java compiler environment.   (05)
(d) State difference between LL parser and LR parser.   (05)
                                                                             (05)

Q2. (a) Explain the design of two pass assembler with flowchart and databases.
(Clearly show entries in databases.)
                                                                             (10)

(b) What do you mean by operator precedence grammar? With the help of
following given grammar, parse the input string " a+b*c*d".   (10)

$$E \rightarrow E+T|T$$
$$T \rightarrow T*V|V$$
$$V \rightarrow a|b|c|d$$

Q3. (a) Explain the working of two pass macro processor with neat flowcharts and databases.
(Clearly show entries in databases.)   (10)

(b) Explain different types of code optimization techniques in compiler design. (10)

Q4. (a) Construct LL(1) parsing table for the following grammar:-   (10)
$$S \rightarrow aBDh$$
$$B \rightarrow cC$$
$$C \rightarrow bC | \varepsilon$$
$$D \rightarrow EF$$
$$E \rightarrow g | \varepsilon$$
$$F \rightarrow f | \varepsilon$$
Check whether the string " acbgh" is valid or not.

(b) Discuss different issues in design of code generator.   (10)

Q5. (a) Explain different types of Intermediate Code representation with examples? (10)
(b) Explain working of direct linking loader with example, showing entries in
different databases built by DLL.
                                                                             (10)

Q6. (a) Explain the different phases of compiler with suitable example?   (10)
(b) Write short note on: (Any Two)   (10)
(i) Syntax Directed Definition
(ii) LEX & YACC
(iii) garbage collection and compaction

Q.P. Code :22530

[Time: Three 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 Answer all questions — **20**
a) What are the potential problems of prototyping model?
b) What are the different steps recommended to determine the overall consequences of risks?
c) Explain cohesion and coupling. What are the benefits of high cohesion and low coupling?
d) With examples, differentiate between validation and verification.

Q.2
a) Tell the methods to gather the requirements for an online ticket selling system for an event. Mention any four different requirements elicitation methods. **10**
b) With a neat diagram explain the spiral model of software development **10**

Q.3
a) Describe and discuss the characteristics of the agile requirements process. **10**
b) Prepare a risk identification checklist and RMMM plan for creating an UID with biometrics (Unique identification number) for a highly populated country. **10**

Q.4
a) Explain the different metrics used for software quality and reliability. **10**
b) Explain basis path testing and cyclomatic complexity with suitable examples. **10**

Q.5
a) What is Software Configuration Management? Explain the various steps involved in change control. **10**
b) Explain the different OO testing methods. **10**

Q.6 Write short notes on (any two) **20**
a) SCRUM
b) Service Oriented Software Engineering
c) Schedule and Cost Slippage
d) Security Engineering

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Q.P. Code: 24230

(3 Hours)

Total marks : 80

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

Q1:
  a) What are the different deadlock avoidance techniques ?
  b) What are the approaches for global query optimization ?
  c) Compare federated databases with non-federated databases.
  d) What are the Concurrency Control Anomalies ?   [5 X 4]

Q2:
  a) Explain Design issues of Distributed DBMS.   [10]
  b) Discuss Allocation of fragments in detail.   [10]

Q3:
  a) Explain ACID properties of transaction management   [10]
  b) Discuss different types of Locking Mechanisms.   [10]

Q4:
  Consider the global schema: [20]
  PATIENT(Number, name, UID, Amount_due, Dept, Doctor, Med_treatment)
  DEPARTMENT (Dept, Location, Director)
  STAFF (Staffnum, Director, Task).
  1) Show 2 example of horizontal fragmentation.
  2) Show 2 example of Vertical fragmentation.
  3) Show 2 example of Derived fragmentation.

Q5:
  a) Explain different Types of Failures in a Distributed Database System.   [10]
  b) Design XML DTD file and XML document file for the following relational
     schema: [10]
     customer(cname, cresidence, ctel)
     item(item-name, item-code)
     order-request(customer, set of product)
     ctel can be a residence number or a mobile number.

Q6:
  Write notes on the following. (any two)   [10 X 2]
    a) Reference Architecture of Distributed DBMS.
    b) Objectives of query processing.
    c) 3PC recovery protocols.
    d) Querying and transformation of XML data.

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Q. P. Code:-22992

(3 hours) [Total Marks: 80]

NB:

1) Question No.1 is **compulsory**.
2) Attempt any **three** questions out of the remaining questions.
3) Make suitable assumptions wherever necessary.

1. a) Compare WCDMA and CDMA 2000. (5)
    b) What is the relationship between the Base Station and Mobile (5) Switching Centre? Discuss the role of EIR entity of GSM network.
    c) Why do Hidden and Exposed terminal problems arise?How would you (5) propose to solve it?
    d) Define footprint w.r.t satellite systems. Draw and explain how (5) communication within the footprint happens?

2. a) Explain power management in IEEE 802.11 infrastructure networks and (10) ad-hoc networks.
    b) Looking at the HLR/VLR database used in GSM how does this (10) architecture limit the scalability in terms of users, especially moving users? Explain the control channels of GSM.

3. a) How the agent can be discovered using Mobile IP? Give the overlay of (10) agent advertisement packet which includes mobility extension.Also, discuss how tunneling works for Mobile IP using IP-in-IP encapsulation.
    b) Draw and explain the architecture of TETRA and specify the standards (10) and services offered by TETRA.

4. a) Explain the various security issues involved in mobile computing. (10)
    b) Compare and contrast HIPERLAN2 and IEEE 802.11. (10)

5. a) Describe Bluetooth architecture and protocol stack. Also, discuss its (10) limitations.
    b) Explain the data rate enhancement with the help of GPRS network (10) model. What is the maximum data rate obtained by GPRS network?

6. Write short notes on the following :
    a) Dalvik Virtual Machine (DVM).
    b) M-TCP. (5)
    c) Wireless Local Loop (WLL). (5)
    d) QoS in 3G. (5)
    (5)

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