Code: 9A05501

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

PRINCIPLES OF PROGRAMMING LANGUAGES

(Common to Electronics & Computer Engineering & Computer Science & Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Explain different programming domains with example languages.
(b) Explain any two syntactic design choices that effect readability of a program.

2 (a) What is an ambiguous grammar? Explain with an example.
(b) Write BNF form for describing *if* statements and *lists.*

3 Explain implementation of arrays with examples.

4 (a) What are the differences between break statement of C++ and that of java?
(b) Give brief description about guarded commands.
(c) Write design issues for arithmetic expressions.

5 (a) Explain in detail the local referencing environment of a sub-program.
(b) Explain three semantic models of parameter passing.

6 (a) What is a task? What are different categories of tasks? Differentiate between task and subprogram.
(b) What is competition synchronization? Explain the need for competition synchronization.

7 Explain in detail exception handling in java with example.

8 (a) Write short notes on fundamentals of functional programming languages.
(b) With the help of a suitable example, explain the modules using python.

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Code: 9A05502

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

SOFTWARE ENGINEERING

(Common to CSS, IT & CSE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 What is software? Explain about the evolving role of software.

2 What are the drawbacks of RAD model & compare with the water fall model?

3 Describe about requirement engineering process with the help of spiral model.

4 What is the purpose of design process & design quality & what are the characteristics of good design?

5 Explain structure chart of a traditional system.

6 Discuss about strategic approach for software testing.

7 (a) Explain about project metrics.
(b) Explain about reconciling LOC and FP metrics.

8 (a) What is quality?
(b) Explain 3 important points of quality.

*****

Code: 9A05503

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

COMPUTER GRAPHICS

(Common to ECC & CSE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Discuss about the optical scanning mechanism followed in image scanners.
(b) Differentiate between sampling and event driven processing.

2 (a) Explain Simple DDA algorithm for generating a line.
(b) Draw a line for the points (3, 4) and (7, 8) using DDA line drawing algorithm.

3 Given any arbitrary matrix in 3*3 homogeneous coordinates derive the corresponding inverse transformation matrix.

4 Write in detail about composite interaction tasks.

5 (a) Derive 3D plane surface equation.
(b) Write notes on different representations of a polygon mesh.

6 What are regularized Boolean set operations? How they are different from normal Boolean set operations? Explain in detail their significance.

7 (a) Write short notes on halftone patterns.
(b) Describe RGB color model.

8 (a) Explain how a camera model can be improved.
(b) Write a brief note on recursive ray tracing.

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Code: 9A05504

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

COMPILER DESIGN

(Computer Science & Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Write short notes on compiler construction tools.
(b) Discuss in detail about grouping of phases.

2 (a) Discuss in detail about different orders of derivation in parsing.
(b) What is the role of parser? Explain in detail.

3 (a) What is the syntax for YACC source specification program?
(b) How YACC resolves parsing action conflicts? What is the new production added to the YACC on error recovery?

4 (a) Explain about specification of a simple type checker.
(b) Describe in detail about abstract syntax tree.

5 Explain the linear list hash table and symbol table mechanism with examples.

6 What do you understand by code optimization? Write the algorithm to partition the 3 address code into basic blocks.

7 Write and explain iterative algorithm to solve data-flow equation.

8 Generate target machine code for the following program.

```
main()
{
        for( j=2; j<=n; j++)
                a[j]=1;
        count=0;
        for(j=2; j<=n**0.5;j++)
                if(a[j])
                {
                        count++;
                        for(k=2*j; j<=n; k=k + j)
                                a[k]=0;
                }
        print f ("%d", count);
}
```

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Code: 9A05505

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

OPERATING SYSTEMS

(Common to IT, ECC & CSE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 Discuss the different classes of computer systems whose functions are most limited and whose objective is to deal with limited computation domains.

2 Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, and P5 all at time 0.

(a) Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non preemptive priority (a smaller priority number implies a high priority) and RR (Quantum = 1).
(b) What are the turnaround and waiting processes for each process for each of the scheduling algorithms in part a?

3 (a) Explain the usage of a monitor.
(b) What are the requirements for solving critical-section problem?

4 (a) What is 50 percent rule of fragmentation?
(b) Compare and contrast paging and segmentation.

5 Describe Banker's algorithm to avoid a deadlock. What are the problems in its implementation?

6 What are the different types of directory structures?

7 Explain in detail various I/O transfer techniques.

8 Explain the capability based protection system HYDRA.

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Code: 9A05506

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

COMPUTER NETWORKS

(Common to IT & CSE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) List advantages and disadvantages of having International standards for network protocols.
(b) Briefly explain the various types of the wireless transmissions.

2 Explain PPP with frame format. Explain how it provides the facility through link control protocol and network protocol.

3 (a) Explain how dynamic channel allocation in LANs and MANs are done.
(b) Compare and contrast pure ALOHA and slotted ALOHA.

4 (a) What are the responsibilities of network layer? Explain them.
(b) Write short notes on: Hierarchical routing.

5 What is internetworking? What are the different devices used to interconnect dissimilar networks at different layers? Explain them in detail.

6 Explain with suitable example, the establishment of the connection and the release of the connection using the transport protocols.

7 Give brief description about the electronic mail system.

8 (a) With the help of a neat sketch explain the encryption model.
(b) Give brief description about the substitution ciphers.

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