

**PRINCIPLES OF PROGRAMMING LANGUAGES**

(Common to ECC and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Compare the two approaches of bridging gap between high level languages and machine level languages.  
(b) How an abstract syntax tree helps the designer of the programming languages? Explain with suitable an example
- 2 (a) Convert the following BNF to EBNF  
    <assign> → <id> = <expr>  
    <id> → A | B | C  
    <expr> → <id> + <expr> | <id> \* <expr> | (<expr>) | <id>  
(b) Describe the basic concept of denotational semantics.
- 3 (a) What are design issues and implementation issues to be considered for including records and unions in a programming language?  
(b) What is a variable? What are the attributes of a variable? Elaborate on each of them.
- 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) Discuss about type-checking.  
(b) Explain how subprograms names are passed as parameters.
- 6 What is a monitor? Explain usage of monitors with example in concurrent Pascal to implement cooperation synchronization.
- 7 (a) Explain exception handling in ML.  
(b) Distinguish between checked and unchecked exceptions.
- 8 (a) Discuss in detail about the different data structures that are present in LISP with suitable examples.  
(b) Give brief description about the dialects of LISP.

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Code: 9A05502

R9

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**SOFTWARE ENGINEERING**

(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 How do we define software engineering? What types of changes are made to legacy systems? Why do legacy systems evolve as time passes?
- 2 Which model is classic life cycle? Explain about the model. And compare with incremental model.
- 3 Write in detail about interviewing. Explain with examples.
- 4 Explain about four major elements of design model and draw the diagram for dimensions of design model.
- 5 (a) What are the 3 important roles of a traditional view?  
(b) Explain design elaboration of traditional components.
- 6 (a) Explain about stress testing.  
(b) Explain about performance testing.
- 7 (a) Discuss about determinants of S/W quality.  
(b) Explain about risk mitigation monitoring and management.
- 8 (a) Explain about quality control.  
(b) Explain about quality assurance.

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Code: 9A05503

R9

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**COMPUTER GRAPHICS**

(Common to ECC and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Describe the architecture of a raster scan display with a clear block diagram.  
(b) Compare and contrast features of plasma panels and LCD devices.
- 2 (a) What is aliasing? Explain different methods of minimizing its effect.  
(b) Explain the DDA algorithm for ellipse generation.
- 3 (a) Find the window-to-view port transformation that maps a window whose left corner is at (1, 1) and upper right corner is at (5, 5) on to a view port that has lower left corner at (0, 0) and upper right corner at (1/2, 1/2).  
(b) What are the stages involved in 2-dimensionl viewing transformation pipeline?
- 4 (a) What is a locator? Explain in detail about locator devices.  
(b) Write in brief about keyboard devices.
- 5 What is a spline curve? Explain the role of blending function to plot a spline curve.
- 6 (a) Explain the role of Boolean operators in solid modeling.  
(b) What are the applications of solid modeling system?
- 7 What is meant by clustered-dot ordered dither in computer graphics? Explain it in detail.
- 8 (a) Compute the illumination of specular model for following:  
 $n = j$  ,  $L = -i + 2j -k$  ,  $S = i + 3/2 j + 1/2 k$   
(b) Write notes on polygon mesh shading.

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Code: 9A05504

R9

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**COMPILER DESIGN**

(Computer Science and Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) What is compiler and what is cross computer?  
(b) Define regular expression. Give examples of regular expressions.
  
- 2 Eliminate left recursion for the following grammar:  
$$E \rightarrow E+T|T$$
$$T \rightarrow T*F|F$$
$$F \rightarrow (E)|id$$
  
- 3 Construct the GOTO graph whose states are canonical sets of LR(1) items for the following grammar:  
$$S \rightarrow CC$$
$$C \rightarrow cC$$
$$C \rightarrow d$$
  
- 4 (a) Explain about syntax directed definitions in detail.  
(b) Explain in detail about the construction of syntax trees.
  
- 5 (a) Explain the term run time support and storage organization.  
(b) What is activation record? Explain each of its fields.
  
- 6 (a) What is meant by loop optimization?  
(b) What is peephole optimization? Discuss.
  
- 7 (a) What are dominators? Explain with example.  
(b) Write the algorithm for code motion.
  
- 8 (a) Explain in detail about global register allocation.  
(b) Differentiate among source code, intermediate code and target code.

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**OPERATING SYSTEMS**

(Common to IT, ECC and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 Write notes on the following:
  - (a) Multitasking.
  - (b) Real-time embedded systems.
  - (c) System calls.
  
- 2 (a) What is a thread? Illustrate the difference between a traditional single-threaded process and a multithreaded process.  
(b) Explain the following scheduling algorithms with examples:
  - (i) Shortest-remaining-time-first. (ii) Round robin.
  
- 3 (a) Give the definition of swap( ) instruction. Explain the implementation of mutual exclusion using swap( ).  
(b) Explain the different types of storage media.
  
- 4 (a) What is compaction? What are its advantages and disadvantages?  
(b) Explain enhanced second-chance page replacement algorithm with an example. What is the major difference between this algorithm and the simpler clock algorithm?
  
- 5 (a) Define deadlock prevention and deadlock avoidance.  
(b) Explain in detail the deadlock recovery techniques.
  
- 6 (a) What are the approaches for sharing of files? Give their relative merits and demerits.  
(b) How dangling pointer problem occurs when deleting a file? What is the solution for it?  
(c) How garbage collection is used in the context of file system?
  
- 7 (a) Draw the diagram to depict the device functionality progression and explain.  
(b) Why is it difficult to map a logical block number onto the sectors of the disk?
  
- 8 (a) What is key distribution? What are the problems with key distribution?  
(b) How passwords can be used for authentication? What are the merits and demerits of passwords?

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Code: 9A05506

R9

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**COMPUTER NETWORKS**

(Common to IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain about TCP model. What is the main difference between TCP and UDP?  
(b) Write about fiber optic transmission media.
- 2 (a) Distinguish between the noisy channel and noise less channel protocols.  
(b) Explain CRC method for error checking with example.
- 3 (a) Write short notes on wireless LANs.  
(b) Briefly explain the IEEE 802.11 protocol stack.
- 4 (a) What is hierarchical routing? When it is used? State merits and demerits of hierarchical routing.  
(b) Compare flow control and congestion control.
- 5 (a) Describe in detail about concatenated virtual circuits.  
(b) Discuss in detail about the connectionless internetworking.
- 6 (a) What is meant by marshalling? Explain it in detail.  
(b) Discuss in detail about the real time transport protocol stack with a neat sketch.
- 7 (a) Explain in detail about the hyper text transfer protocol.  
(b) Explain how the dynamic web page generated from the client side.
- 8 (a) Explain the process of converting the message to cipher text by using RSA technique with a suitable example.  
(b) Discuss the different cryptanalysis techniques.

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