

Code: 9A05501

III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 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) Describe characteristics that contribute to the writability of a programming language.
(b) Explain any two syntactic design choices that affect the readability of a program.
- 2 Given following grammar for expressions.
 $\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A \mid B \mid C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{term} \rangle \mid \langle \text{term} \rangle$
 $\langle \text{term} \rangle \rightarrow \langle \text{term} \rangle * \langle \text{factor} \rangle \mid \langle \text{factor} \rangle$
 $\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle) \mid \langle \text{factor} \rangle$
 Show a parse tree and a leftmost derivation for following statements:
 (a) $A = A * (B + C)$
 (b) $A = B * (C * (A + B))$
- 3 (a) Explain IEEE floating point standard 754 formats for single and double precision representation.
(b) Explain different design choices regarding length of string values.
- 4 (a) What is the role of parentheses with relate to precedence of operators?
(b) Explain conditional expression of C language.
(c) Explain the side effect related to evaluation of expression.
- 5 (a) Explain difference between procedures & functions.
(b) What is the information provided by the subprogram header?
(c) Explain two different ways that a non method subprogram can gain access to the data.
- 6 Explain abstract data types in C# with examples.
- 7 (a) Explain the closed world assumption used by Prolog. Why is this limitation?
(b) What are the three primary uses of symbolic logic in formal logic?
- 8 (a) What is meant by logic programming? Explain the uses of symbolic logic in formal logic.
(b) Explain exception handling in ML.

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- 1 (a) Explain language categories.
(b) Explain different language design tradeoffs.
- 2 Clearly explain how operational semantics are used to describing the meaning of programs.
- 3 (a) Explain different design choices used for array indexes in various languages.
(b) What is heap dynamic array? Explain with example with respect c # and perl languages.
- 4 What is selection statement? Explain different types of selection statements.
- 5 (a) Discuss how parameter- passing techniques are implemented.
(b) Explain how multi-dimensional arrays are passed as parameters.
- 6 (a) What is a C++ name space and what is its purpose?
(b) Explain how information hiding is provided in an Ada package.
(c) What is a java package and what is its purpose?
- 7 (a) Explain basic concepts of exception handling.
(b) Write design issues of exception handling
- 8 (a) Explain the negation problem in Prolog.
(b) Explain about the basic elements of Prolog.

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- 1 What is a compiler explain? Explain in detail about compilation process.
- 2 (a) Define attribute grammar.
(b) Write attribute grammar for simple assignment statement.
- 3 (a) Explain five categories of arrays identified based on the binding to subscript value ranges and the binding to storage.
(b) What are the primary design issues specific to arrays?
- 4 (a) Define l-value and r – value.
(b) What is constant? What are different design issues of constants?
(c) What is short circuit evaluation? Explain with suitable examples.
- 5 (a) Explain type-checking technique in parameter passing method.
(b) Discuss how generic functions are implemented in C++.
- 6 (a) What are two categories of concurrency? What is the need for studying concurrency?
(b) What is task synchronization? Explain in detail two kinds of task synchronization with examples.
- 7 (a) Explain overview of logic programming.
(b) What are possible frames for exception in Ada?
- 8 (a) Explain about the origins of Prolog.
(b) Explain about the fact and goal statements in Prolog.

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- 1 (a) With neat diagram explain different phases of a compiler.
(b) What are three fundamental features of object oriented programming language?
- 2 Explain the following terms:
 - a) Left recursive grammar.
 - b) Parse trees.
 - c) Derivations.
- 3 (a) What is enumeration data type? Explain enumeration data type in C. What are different operations allowed on enumeration data type?
(b) What is subrange type? Explain with example.
- 4 (a) Distinguish between scope and extent.
(b) Explain control flow in C-language.
(c) Distinguish between static and dynamic scope rules.
- 5 (a) What design issues to be considered for providing sub programs (or) functions? Explain in detail.
(b) Write about overloaded operators.
- 6 (a) Explain Ada synchronous message passing model.
(b) What is a thread? Explain how threads are implemented in java.
- 7 Explain in detail exception handling in Ada.
- 8 (a) Explain two ways in which the list-processing capabilities of scheme and prolog are similar.
(b) Explain any three applications of logic programming.

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B.Tech III Year I Semester (R09) Regular and Supplementary Examinations, November 2012

SOFTWARE ENGINEERING
(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 What is a process pattern? Explain about the Evolving role of software.
- 2 What are the software requirements? Explain in detail about them.
- 3 Write short notes about:
 - (a) Viewpoints.
 - (b) Use cases.
 - (c) Ethnography.
 - (d) Interviewing.
- 4 Write about Functional dependences and Modularity. Explain with example.
- 5 (a) What are the steps for conducting component level design?
(b) Explain collaboration diagram with messaging.
- 6 (a) Explain software testing strategy as a spiral model
(b) Explain software testing as 4 steps.
- 7 (a) Explain about assessing overall project risk.
(b) Explain about risk component drivers.
- 8 (a) Explain about McCall's Quality factors.
(b) Explain about Software Reliability.

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B.Tech III Year I Semester (R09) Regular and Supplementary Examinations, November 2012

SOFTWARE ENGINEERING
(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 How do we define software engineering? Explain about the Evolving role of software.
- 2 Discuss in detail the non-functional requirements of software.
- 3 Clearly explain about object models with diagrams?
- 4 (a) How do we assess the quality of a software design?
(b) Describe software architecture in your own words.
- 5 (a) What is coupling?
(b) Explain the categories of coupling.
- 6 (a) Explain about recovery testing.
(b) Explain about security testing.
- 7 (a) Explain about measuring quality of S/W.
(b) Explain about defect removal efficiency.
- 8 (a) Discuss about measures of reliability & Availability.
(b) Explain about software safety.

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B.Tech III Year I Semester (R09) Regular and Supplementary Examinations, November 2012

SOFTWARE ENGINEERING
(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 Discuss about:
 - (a) What is the difference between PSP and TSP?
 - (b) Artificial intelligence software
 - (c) Practitioners myths?

- 2 Discuss in detail system requirements draw the sequence diagram of ATM withdrawal.

- 3 Write in detail about View Points. Explain with examples.

- 4 What are the various types of design patterns are available for software engineer?
Describe about pattern based software design?

- 5 (a) Explain about domain engineering.
(b) Explain about component qualification.

- 6 (a) Explain about graph based testing methods.
(a) Explain about equivalence partitioning.

- 7 (a) Explain about measuring quality of S/W.
(b) Explain about defect removal efficiency.

- 8 (a) Explain about 9126 Quality factor.
(b) Explain about Targeted Quality factor.

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B.Tech III Year I Semester (R09) Regular and Supplementary Examinations, November 2012

SOFTWARE ENGINEERING
(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 Discuss about:
 - (a) System software.
 - (b) Artificial intelligence software.
 - (c) Engineering / Scientific software.
 - (d) Embedded software.

- 2 Discuss about
 - (a) Water fall model.
 - (b) RAD model.

- 3 Explain about requirements elicitation and analysis.

- 4 What is a architectural style? Describe about different architectural styles.

- 5 Explain about component level design compute page cost with diagram.

- 6 Explain about dataflow model for safe home system.

- 7
 - (a) Explain about Web application metrics.
 - (b) Explain about Use case oriented metrics.

- 8 Explain about SQA tasks, goals and metrics.

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III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

COMPUTER GRAPHICS

(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) What is computer graphics? What are the major considerations in the study of computer graphics?
(b) List out the advantages of LCD displays.
- 2 (a) Write in detail about normalized device coordinates.
(b) Suppose that the display device has resolution 1024*1024. The pixels are numbered from 0 to 1023 for both x and y directions. Consider some normalized coordinates and convert into this display device coordinates.
- 3 What is perspective projection? Derive the transformation matrix for perspective projection.
- 4 (a) Elaborate on parameter passing in object hierarchy.
(b) Discuss the relationship between model, application program, and graphics system.
- 5 (a) What is a triangle strip? Give an example.
(b) Write a short note on B-spline curves.
- 6 (a) Write notes on primitive instancing.
(b) Write the issues in developing user interfaces for solid modeling.
- 7 What is the role of color in computer graphics? Explain briefly different methods to generate color on graphics display devices.
- 8 (a) Describe briefly ray tracing technique for rendering an object.
(b) What do you mean by shading model? Explain Phong shading model.

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Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Describe different techniques for generation of colors in RGB monitors.
(b) How can you produce black and white outputs in the RGB system?
- 2 (a) Discuss about various line style primitives.
(b) What is multiple windowing? Explain the use of multiple windowing.
- 3 Derive the matrix form for the geometric transformations in 3-D graphics for the following operations:
 - a) Transformation.
 - b) Scaling.
 - c) Mirror reflections.
- 4 (a) What are different characteristics of retained-mode graphics package?
(b) Explain different types in defining structures.
- 5 What is a quadric surface? Explain different types of quadric surfaces with example.
- 6 How solid can be generated using sweep techniques? Illustrate it by constructing a cylinder parallel to z axis with base centered at (30, 60, 0) radius 10, and length 70. Also describe steps to construct a solid cone lying on the xz plane with base radius 30 and cone tip located at (70, 30, 70).
- 7 Explain different color models for raster graphics.
- 8 Explain any two algorithms of shadow generation.

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Answer any FIVE questions
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- 1 (a) What are the basic differences between selector and locator devices?
(b) Write short notes on display devices.
- 2 (a) Using steps followed in Sutherland Hodgeman algorithm, determine the intersection point of the line segment P1P2 against a clipping window P3P4 where coordinates of end point are P1 (0, 0) P2 (3, 2) P3 (3, 0) & P4 (0, 2).
(b) Why the Sutherland- Hodgeman algorithm is called re-entrant algorithm?
- 3 (a) Define the terms:
(i) Object space.
(ii) Image space.
(iii) Window and
(iv) View port.
(b) Describe the viewing and windowing transformations.
- 4 (a) Explain the steps involved in subordinate structure overriding an inherited attribute.
(b) Explain about SPHIGS attributes.
- 5 Discuss the characteristics of Bezier curves and Bezier surfaces in detail.
- 6 (a) Explain solid geometry method in detail.
(b) Briefly write about modeling and co-ordinate transformations.
- 7 How the color is used in computer graphics? Explain.
- 8 (a) A light source of intensity 25 units is throwing light on a flat object at distance D. The ray makes an angle of 30° with the normal to the surface. Write an expression for the diffuse reflection from the object. Define any constants that appear in your expression.
(b) Explain the Gouraud surface rendering method for displaying an object.

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Time: 3 hours

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Answer any FIVE questions
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- 1 (a) Explain the use of software portability in graphics standards.
(b) List out the advantages of interactive graphics.
- 2 (a) Compute the intermediate points using the DDA algorithm, when the end points of the line are given as (0, 0) and (7, 4).
(b) Distinguish between Cohen-Sutherland out code and Sutherland –Hodgeman algorithm.
- 3 (a) What is shearing? Differentiate between x-shear and y-shear.
(b) Give the matrix representations and homogenous coordinates for all the cases in reflection.
- 4 Explain the following:
(i) Traversal of a three-level hierarchy.
(ii) Traversal state stack.
(iii) Annotated structure network.
- 5 Explain the following:
i) Hermite surfaces
ii) Bezier surfaces
iii) B-spline surfaces.
- 6 What are the methods to represent a solid object in computer graphics? Explain them in detail.
- 7 What is dithering? Write notes on it.
- 8 (a) Explain the visible surface ray tracing.
(b) Describe the technique of color Interpolation shading. How does it differ from Phong Shading?

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III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

COMPILER DESIGN

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) What is compiler and what is cross computer?
(b) Define regular expression. Give examples of regular expressions.
- 2 Discuss in detail about the preprocessing steps required for predictive parsing by considering one example.
- 3 (a) Write a brief note on bottom up parsing.
(b) Define handle. Explain about handle pruning.
- 4 (a) Construct a syntax-directed translation scheme that translates inters into Roman numerals.
(b) What is syntax directed translation? How it is used for translation of expressions?
- 5 Explain the storage allocation in unstructured languages.
- 6 Explain in brief about intermediate code optimization algorithms.
- 7 How to calculate the amount of data-flow information? Explain.
- 8 What is the role of labeled tree in code generation? Explain with example.

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III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

COMPILER DESIGN

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain the procedure for conversion of NFA into DFA.
(b) Develop a lexical analyzer to recognize a few patterns in PASCAL, C and FORTRAN (eg: identifiers, constants and operators).
- 2 Eliminate left recursion for the following grammar:
$$E \rightarrow E+T|T$$
$$T \rightarrow T*F|F$$
$$F \rightarrow (E)|id$$
- 3 (a) What are the advantages of using LALR parser technique?
(b) Distinguish SLR and LALR grammar.
- 4 Discuss in detail about synthesized and inherited attributes.
- 5 (a) Explain the advantage of indirection in symbol table.
(b) Compare static and stack storage allocation strategies.
- 6 Explain the structure preserving transformations adopted by the code optimizer.
- 7 (a) What is use-definition chain? Explain its usage.
(b) Explain how data-flow equation is solved.
- 8 (a) Give an efficient algorithm for register allocation.
(b) Explain the issues in the design of code generator.

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COMPILER DESIGN

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
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- 1 (a) Explain format for the input or source file of LEX.
(b) Discuss in detail about lexical errors.
- 2 Find the predictive parser for the following grammar and parse the sentence $(a+b)^*c$
 $E \rightarrow E+T|T$
 $T \rightarrow T*F|F$
 $F \rightarrow (E)|id$
- 3 Give the LALR parsing table for the below grammar:
 $S \rightarrow L=R$
 $S \rightarrow R$
 $L \rightarrow *R$
 $L \rightarrow id$
 $R \rightarrow L$
- 4 (a) Define S-attributed and L- attributed grammars.
(b) Write a syntax directed definition to convert the given binary number with its decimal equivalent.
- 5 (a) Describe in detail about storage organization.
(b) Explain in detail about various methods of passing parameters.
- 6 Discuss various popular code optimization techniques.
- 7 (a) Differentiate between header and pre-header.
(b) What is dominator tree? Explain it.
- 8 Describe in detail about a simple code generator with the appropriate algorithm.

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COMPILER DESIGN

(Computer Science & Engineering)

Time: 3 hours

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Answer any FIVE questions
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- 1 (a) What is the role of lexical analyzer?
(b) Construct an NFA for the regular expression $r = (a|b)^*abb$ and convert it into equivalent DFA.
- 2 (a) Discuss different error recovery strategies that a parser can employ to recovery from syntactic error.
(b) What is context free grammar? Explain with an example.
- 3 (a) Trace the operator precedence algorithm for the string $(id +id) * id$.
(b) Explain the procedure for constructing precedence functions from an operator precedence matrix.
- 4 Generate intermediate code generation for the following code along with the required translation scheme:

```
int a,b;
float c;
a=10;
switch(a)
{ case 10:c=1;
  case 20:c=2;
}
```
- 5 (a) Explain the various data structures for symbol table.
(b) Distinguish between static and dynamic storage allocation with respect to runtime environment.
- 6 Explain in detail about the DAG representation of basic blocks.
- 7 (a) With example, describe the reducible flow graph.
(b) Why to analyze data-flow in the code? Explain how it is done.
- 8 (a) Write in detail about the issues in the design of a code generator.
(b) What are the steps to compute the next use information?

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III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

OPERATING SYSTEMS

(Common to IT, ECC & CSE)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain the concept of multitasking.
(b) Explain the special program used to generate a system.
- 2 (a) What is the objective of time sharing system? Explain how it is achieved.
(b) Explain in detail the analytical method for evaluating scheduling algorithms.
- 3 (a) Give an instance where the producer and consumer routines may not function correctly when executed concurrently.
(b) What are the different types of storage media? Explain.
- 4 Explain paging scheme for memory management, illustrate the hardware support for paging and explain the concept of paging with an example.
- 5 (a) Consider a system consisting of 'm' resources of the same type being shared by 'n' processes, resources can be requested and released by processes only one at a time. Show that the system is deadlock free if the following two conditions hold:
(i) The maximum need of each process is between 1 and 'm' resources.
(ii) The sum of all needs is less than $m+n$.
(b) Under the normal mode of operation, what is the sequence of operations a process performs while utilizing a resource.
- 6 (a) What is file structure? How file structure is supported by different operating systems?
(b) What are the different types of file access methods?
- 7 (a) Is there any way to implement truly stable storage. Explain your answer.
(b) What are the dimensions on which the devices vary?
- 8 Explain how operating system provides security.

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OPERATING SYSTEMS

(Common to IT, ECC & CSE)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Enumerate on time-shared operating system.
(b) In what ways is the modular kernel approach similar to the layered approach? In what ways does it differ from the layered approach?
- 2 (a) What is the objective of multiprogramming? Explain how it is achieved.
(b) Give a note on CPU scheduling in Linux.
- 3 (a) Explain critical section problem.
(b) What is serializability? Explain in detail.
- 4 Explain in detail paging with an example. Give the paging hardware and explain page table implementation.
- 5 (a) Consider the dining philosopher's problem when the chopsticks are placed at the center of the table and any two of them could be used by philosopher. Assume that the requests for chopsticks are made one at a time. Describe a simple rule for determining whether a particular request could be satisfied without causing deadlock given the current allocation of chopsticks to philosophers.
(b) Illustrate resource allocation graph.
- 6 (a) What are the various operations that can be performed on the file?
(b) What are the various pieces of information associated with an open file?
- 7 (a) Give a brief note on the I/O performance.
(b) Explain about host-attached storage. What are its limitations?
- 8 (a) What are the ways of realizing a domain?
(b) Explain domain switching in the context of protection.

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III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

OPERATING SYSTEMS

(Common to IT, ECC & CSE)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain how the networks are characterized based on the distance between their nodes.
(b) Explain in detail about protection and security offered by operating system in a computer system.
- 2 (a) What are the different states a process can be in? Explain process state diagram in detail.
(b) State the criteria for evaluating CPU scheduling algorithms. Also state whether the criteria is to be optimized for minimal or maximum value.
- 3 (a) What is race condition? Explain with an example.
(b) Explain log-based recovery in detail.
- 4 Explain the most common techniques for structuring the page table.
- 5 Explain the different strategies that operating system designers can adopt vis-à-vis the problem of deadlock.
- 6 (a) What is file? What are the different types of files?
(b) What are the attributes of a file? What is their significance?
- 7 (a) What are the various kinds of performance overheads associated with servicing an interrupt?
(b) Give a note on selection of a disk scheduling algorithm.
- 8 (a) The separation of policy and mechanism is important for flexibility in providing protection. Comment on it.
(b) What are the two methods for association between a process and a domain?

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OPERATING SYSTEMS
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Answer any FIVE questions
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- 1 (a) What the operating system services that provides functions helpful to the user? Explain.
(b) What is the main function of a microkernel? What are its benefits?
- 2 (a) Explain various states and transitions between states with the help of a diagram.
(b) Explain the following scheduling algorithms with examples:
(a) First-come, First served.
(b) Shortest-job first.
- 3 (a) What is critical section? Give the general structure of a typical process sharing logical address space with other process and explain.
(b) Explain locking protocol to ensure serializability.
- 4 (a) Explain why sharing a reentrant module is easier when segmentation is used than pure paging is used.
(b) Compare the main memory organization schemes of contiguous memory allocation, pure segmentation and pure paging with respect to the following issues:
(a) External fragmentation.
(b) Internal fragmentation.
(c) Ability to share code across processes.
- 5 Why can a deadlock not be prevented easily? Discuss this with respect to the necessary conditions for deadlock, considering each of them one by one.
- 6 (a) File system is the most visible aspect of an operating system. Discuss.
(b) A file is an abstract data type. Discuss.
- 7 (a) Explain how the operating system transforms I/O requests to hardware operations.
(b) Discuss the problems with RAID.
- 8 Explain Cambridge cap system approach for protection.

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III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

COMPUTER NETWORKS

(Common to Information Technology & Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain the principle difference between CO communication and CL communication.
(b) Explain about WAN.
- 2 Explain in detail about the two data link layer in protocols widely used in internet.
- 3 (a) Discuss about MAC addresses.
(b) Briefly explain spanning tree bridges and remote bridges.
- 4 Discuss the different algorithms for broadcasting and compare them.
- 5 (a) Discuss in detail about the importance of fragmentation.
(b) Draw and explain the concatenated virtual circuit diagram.
- 6 (a) What is the role of transport address in establishing the connection to a remote application?
(b) What are the different primitives used for transport service? Explain them in detail.
- 7 (a) How do you make an image clickable in HTML? Give an example.
(b) Write a program in java script that accepts an integer greater than 2 and tells whether it is prime number.
- 8 (a) Discuss the substitution cipher mechanism with a suitable example.
(b) Explain the transposition ciphers with an example.

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COMPUTER NETWORKS

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Time: 3 hours

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Answer any FIVE questions
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- 1 Describe ISO-OSI model with a neat sketch.
- 2 (a) Explain one-bit sliding window protocol. Give the advantages and disadvantages of the protocol.
(b) Discuss the services provided by the data link layer to the network layer.
- 3 (a) Explain how static channel allocation is done in LANs and MANs.
(b) Write brief note on differential Manchester encoding.
- 4 Explain multi destination routing and reverse path forwarding technique with examples.
- 5 (a) What is connectionless internetworking? Explain it in detail.
(b) Explain the internetworking using the concatenated virtual circuits.
- 6 (a) Explain how to establish the connection using the transport protocols.
(b) Write a short note on transport service primitives.
- 7 (a) Discuss in detail about the multicast back bone.
(b) Explain the distribution network in detail.
- 8 (a) Explain how the plain text is converted into cipher text by using the DES algorithm with an example.
(b) Discuss the technique used to convert the plain text to cipher text by using the transposition cipher.

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Answer any FIVE questions
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- 1 (a) With a neat diagram, explain the functionality of layers, protocols and interfaces.
(b) What is the difference between connection-oriented and connection-less switching.
- 2 (a) Discuss the use of hamming code to correct the burst errors.
(b) Explain sliding window protocol using go-back-n. What are the advantages and disadvantages of it?
- 3 Briefly discuss about key assumptions in dynamic channel allocation in LANs and MANs.
- 4 Discuss the different algorithms for broadcasting and compare them.
- 5 (a) Discuss some of the ways in which the networks differ.
(b) How is internetworking can be done? Explain in detail.
- 6 (a) Draw the state diagram for a simple connection management scheme. Explain it.
(b) What is forbidden region? Explain it in detail.
- 7 (a) Explain the video server storage hierarchy.
(b) Discuss the role of discrete cosine transformation in of video by using the JPEG format.
- 8 (a) Explain one time pads with a suitable example.
(b) Discuss about the redundancy and freshness.

Code: 9A05506

III B. Tech I Semester (R09) Regular & Supplementary Examinations, November 2012

COMPUTER NETWORKS

(Common to Information Technology & Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

- 1 (a) Write short notes on interface, service and protocol.
(b) What are the advantages and disadvantages of optical fiber as a transmission medium?
- 2 (a) Give the detailed description of PPP frame format.
(b) Explain the following terms of the data link layer:
i) Framing ii) Error control iii) Flow control
- 3 Two CSMA/CD stations are each trying to transmit long (multi frame) files. After each frame is sent, they contend for the channel, using the binary exponential back off algorithm. What is the probability that the contention ends on round k and what is the mean number of rounds per contention period?
- 4 Define route. Why routing algorithm is required. Routes can be predetermined and then use them when required (or) routes can be determined when needed and use them immediately. First method is proactive and second method is reactive. Which one is preferred for wired networks? Justify your answer.
- 5 (a) Give brief description about the different types of networks.
(b) Write short notes on internetworking devices.
- 6 (a) What is a two army problem? How can we solve it? Explain.
(b) Explain the three way handshake protocols with suitable diagram.
- 7 (a) What is MOSPF? Explain its role in multicast back bone.
(b) Explain some of the applications of multimedia.
- 8 (a) What are the basic elements of a product cipher? Explain them in detail.
(b) Explain the data encryption standard with a neat sketch.
