14IT502

Hall Ticket Number:

III/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2018 — **Information Technology**

Fifth Semester — **COMPILER DESIGN**

Time: Three Hours — **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Answer all questions (1X12=12 Marks)

a) Differentiate compiler and interpreter.
b) Draw the transition diagram to recognize signed integer.
c) How to eliminate left factoring of grammar.
d) Write the LR(0) items for the production A → XYZ
e) What is type checking?
f) What are the conflicts occurred in Shift Reduce parser.
g) What is an abstract syntax tree? Give an example.
h) What is dangling ELSE ambiguity?
i) What is activation tree?
j) Give the DAG for the statement "if (a>b) a=a+b else a=a-b"
k) What is back patching?
l) List issues in the design of code generator.

UNIT I

2.a Explain the output of each phase of a compiler for the statement "Position = Initial + rate * 60.0" (Note: Assume all variables are of type int) 6M

2.b What is the need of separating Lexical analysis from Syntax analysis? Explain. 6M

(OR)

3.a Test whether the grammar is LL(1) or not, and construct a predictive parsing table for E → E+T/ T, T → T*F/ F, F → (E)/ id 6M

3.b What is top down parsing? What are the problems in top down parsing? Explain each with suitable example 6M

UNIT II

4.a Construct canonical collection of LR(1) items for the following grammar S → CC, C → cC, C → d 6M

4.b Explain the stack implementation of Shift – reduce parser with an example. 6M

(OR)

5.a Compare and contrast top-down parsing and bottom-up parsing. 8M

5.b Discuss in detail bottom-up evaluation of S attributed definitions. 4M

UNIT III

6.a Discuss in detail various storage management techniques are available and their importance in compiler design? 6M

6.b Explain in detail about Stack allocation scheme. 6M

(OR)

7.a Explain in detail the data structures used for symbol table organization 6M

7.b What are the contents of a symbol table? Explain in detail the symbol table organization for Block-Structured languages. 6M

UNIT IV

8.a	Write an SDT scheme for Boolean expressions.	6M
8.b	Give the SDT scheme for Desk calculator which performs basic Arithmetic operations and evaluate the expression (28/7)*5+5 using SDT scheme.	6M

(OR)

9.a	Define basic block and flow graph. Write an algorithm to construct basic block.	6M
9.b	Why we need to eliminate common sub expression? Explain with an example.	6M

14CS503/14IT503

Hall Ticket Number:

II/IV B.Tech (Regular/Supply) DEGREE EXAMINATION

April, 2018 **Common to CSE & IT**

Fifth Semester **Microprocessors and Microcontrollers**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Answer all questions (1X12=12 Marks)
   a) Define microprocessors?
   b) What do you mean by address bus?
   c) How many segment registers are there in 8086.
   d) What is the clock frequency of 8086?
   e) What are the predefined interrupts in 8086?
   f) State the significance of LOCK signal in 8086?
   g) Write about the jump statement in 8051?
   h) How the signals of the 8237 are classified?
   i) How many machine cycles need to get type number form 8259A? Explain
   j) Name the five interrupt sources of 8051?
   k) How the program memory is organized in 8051 based system?
   l) Explain the functions of the pin PSEN of 8051.

UNIT I

2. a) Explain the architecture of an 8086 with a neat diagram 6M
   b) How do procedure CALL and RET take place in 8086 programming. Explain different conditional and unconditional CALL and RET instructions in 8086 instruction set 6M

(OR)

3. a) Explain the functions of different registers in 8086. Also discuss about flag register contexts 6M
   b) What is a recursive procedure? Write a recursive procedure for finding the factorial of a given number 6M

UNIT II

4. a) Discuss about interrupts of 8086
      i). Software interrupts of 8086 ii). Hardware interrupts of 8086 6M
   b) Narrate how a I/O WRITE operation is performed by 8086 with the help of a neat diagram 6M

(OR)

5. a) Explain the following pins of 8086
      i).TEST ii).NMI iii). MN/MX' 6M
   b) What is interrupt Vector Table of 8086 6M

UNIT III

6. a) What is the need for interrupt controller? Draw and explain the architecture of 8259 programmable Interrupt Controller 8M
   b) Explain how 8051 CPU addresses two 64KB memory of program and data 4M

(OR)

7. a) Explain LOOP, JUMP instructions in 8051 6M
   b) Explain the Cascading of 8259A with a neat block diagram 6M

UNIT IV

8. a) Explain about counters and timers of 8051 architecture 6M
   b) Classify the 8051 instructions 6M

(OR)

9. a) Write an ALP to generate square wave 6M
   b) Mention the Salient features of 8051 microcontroller 6M

14CS IT 504

Hall Ticket Number:

III/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2018 **Common for CSE & IT**

Fifth Semester **DATABASE MANAGEMENT SYSTEMS**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Answer all questions (1X12=12 Marks)
   a) Define Database and DBMS.
   b) What is Database schema?
   c) Define primary key and foreign key.
   d) What is recursive relationship?
   e) What is database catalog?
   f) Write the basic form of Select statement?
   g) Define DDL.
   h) Define Second Normal Form.
   i) What is functioning of system log?
   j) Define lock
   k) When a schedule is said to be cascadeless?
   l) Define timestamp.

UNIT I

2. a) Discuss the main characteristics of the database approach and how it differs from traditional file systems. 6M
   b) Write notes on database languages and Interfaces. 6M

(OR)

3. a) Explain the main phases of database design with a neat diagram. 8M
   b) Discuss about various constraints on Relationship Types. 8M

UNIT II

4. a) Explain the Unary and Set operations of relational algebra with examples 8M
   b) List various data types of SQL and explain. 4M

(OR)

5. a) Write short notes on Domain Relation al Calculus. 6M
   b) Discuss various types of Constraints in SQL.. 6M

UNIT III

6. a) Write the algorithms for insertion and deletion of an element in B+ Tree. 4M
   b) Compare BCNF and 3NF with an example. 8M

(OR)

7. a) Discuss about Indexed Sequential Access Methods(ISAM) with neat sketches. 8M
   b) Describe Join Dependency with an example. 4M

UNIT IV

8. a) What are the desirable properties of a transaction? 4M
   b) Write short notes on Shadow Paging. 8M

(OR)

9. a) Discuss about Two-Phase locking techniques for Concurrency Control. 6M
   b) Discuss about Recovery techniques based on Deferred Update. 6M

14IT505

Hall Ticket Number:

III/IV B.Tech (SuppleMENTARY)Degree Examination

April, 2018 **Information Technology**

Fifth Semester **Computer Networks**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Answer all questions (1X12=12 Marks)
   a) What is Data Communication Networking?
   b) Compare Asynchronous and Synchronous Transmission.
   c) Write short notes on flow control.
   d) Compare connection oriented and Connection less services.
   e) Disadvantage of Distance Vector Algorithm.
   f) Write General Principles of Congestion Control.
   g) List Berkeley Socket primitives.
   h) Write short notes on Buffering.
   i) Write Uses of TCP Protocol compare to other protocols.
   j) Uses of Application Layer.
   k) Write short notes on Message Transfer.
   l) Differentiate Static and Web Documents.

UNIT I

2. a) Explain OSI Reference Model in detail. 6M
   b) Describe TCP/IP protocol architecture. 6M

(OR)

3. a) Describe any one Error Detection method. 4M
   b) Explain Hamming code Error Correction Technique in detail. 8M

UNIT II

4. a) Compare Virtual-Circuit and Datagram Subnets. 6M
   b) Explain Hierarchical Routing algorithm in detail. 6M

(OR)

5. a) Describe Congestion Prevention Policies. 6M
   b) Explain Internet Control Protocols in detail. 6M

UNIT III

6. a) Explain the services provided to the upper layers by the transport layer. 6M
   b) Explain Multiplexing and Crash Recovery in detail. 6M

(OR)

7. a) Briefly Explain about UDP. 6M
   b) Explain TCP Congestion control and TCP Timer Management. 6M

UNIT IV

8. a) Describe DNS Name Space and Name Servers in detail. 8M
   b) Describe Message formats of Electronic Mail. 4M

(OR)

9. a) Explain Architectural Overview of World Wide Web. 6M
   b) Describe HTTP and Performance Enhancements. 6M

14IT506/C

Hall Ticket Number:

III/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2018 **Information Technology**

Fifth Semester **UNIX Programming**

Time: Three Hours **Maximum:** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Define the following (1X12=12 Marks)
   a) Write the difference between absolute and relative path names?
   b) Write the syntax to run the program as background process?
   c) What are the different types of editors?
   d) What is the significance of HOME variable?
   e) What is the use of shell variable '?'
   f) What are the positional parameters?
   g) How can you change the priority of a process?
   h) What is an orphan process?
   i) Write the difference between dup and dup2?
   j) Define Signal?
   k) How can you resume a suspended Process?
   l) Write the syntax to create pipes?

UNIT I

2. a) Explain the characteristics of UNIX operating system 6M
   b) Explain Line addressing and context addressing of sed command 6M

(OR)

3. a) Draw and Explain process State diagram? 6M
   b) Write an awk script to print even numbers upto 100. 6M

UNIT II

4. a) Write a shell script to find the reverse of a number? 6M
   b) Write about shell variables and environment variables? 6M

(OR)

5. a) Write a shell script to calculate factorial of a user specified number? 6M
   b) Explain about redirection and Piping with examples? 6M

UNIT III

6. a) Write briefly about family of exec () system calls with one example. 6M
   b) What is a zombie process? Write a C Program for zombie process 6M

(OR)

7. a) Explain the following system calls i) lseek,stat,unlink,getdents 6M
   b) Write a C program to demonstrate a parent process that uses wait () system call to catch child's exiting code 6M

UNIT IV

8. a) Write a C program that explains about creation, attaching and detaching the shared memory segment 6M
   b) Define Socket? Explain socket related system calls with examples? 6M

(OR)

9. a) What are the different forms of IPC mechanisms? Explain them briefly? 6M
   b) Write a C program that demonstrates handling of alarm signal? 6M