14IT 502

Hall Ticket Number:

III/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2017 — **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. Define token, lexeme and pattern.
b. What is the use of sentinel value in input buffering scheme?
c. Differentiate left recursion and left factoring.
d. Write the LR(0) items for the production A → XYZ
e. What is S attributed grammar?
f. What are the conflicts occurred in Shift Reduce parser.
g. List out different parameter passing mechanisms.
h. What is the scope of a variable?
i. What is activation tree?
j. Give postfix notation for the statement "if (a>b) a=a+b else a=a-b"
k. What is back patching?
l. Define next use information.

UNIT – I

2.a Explain the output of each phase of a compiler for the statement "Position = Initial + rate * 60" (Note: Assume all variables are of type float) 8M

2.b Explain the role of lexical analyzer. 4M

(OR)

3.a Test whether the grammar is LL(1) or not, and construct a predictive parsing table for S → AaAb / BbBa , A → ε, B → ε 8M

3.b Write an algorithm to eliminate left recursion of a grammar. 4M

UNIT II

4.a For the following grammar E → E+T/ T, T → T*F/ F, F → (E)/ id 8M
Construct the LR (0) canonical collection and also design SLR parsing table.

4.b Discuss in detail YACC tool. 4M

(OR)

5.a Compare and contrast top-down parsing and bottom-up parsing. 6M

5.b Discuss in detail bottom-up evaluation of S attributed definitions. 6M

UNIT III

6.a What are the various storage management techniques available? What are their importance in compiler design? 8M

6.b Discuss in detail source language issues. 4M

(OR)

7.a Explain in detail the data structures used for symbol table organization 8M

7.b What do you understand by scoping in the symbol table? Give the difference between scope-by-numbering and scope-by-location. 4M

UNIT IV

8.a Write an SDT scheme for assignment statement 6M

8.b Generate quadruples, triples and indirect triples for the expression A := -B*(C+D)/E 6M

(OR)

9.a Consider the following sequence of three address code: 6M

(1) PROD:=0
(2) I:=1
(3) T1:=4 * I
(4) T2:=addr (A) – 4
(5) T3:= T2[T1]
(6) T4:= addr (B) – 4
(7) T5:= T4[T1]
(8) T6:= T3 * T5
(9) PROD:= PROD + T6
(10) I:= I + 1
(11) If I <= 20 goto (3)

Find the basic blocks and construct a flow graph.

9.b Write an algorithm for simple code generation. 6M

14CSIT 503

Hall Ticket Number:

III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

April, 2017 **Common for CSE & IT**

Fourth 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 (12X1=12 Marks)

a) What is meant by segmentation?
b) Differentiate Procedures & Macros?
c) Write about ASSUME & DB assembler directives
d) What is a machine cycle?
e) What are non-maskable interrupts give examples?
f) Explain about ALE pin?
g) What is the function of TEST pin?
h) What is type 1 interrupt?
i) What is the use of DMA controller?
j) Write the differences between microprocessors & microcontrollers?
k) Write about CALL instruction?
l) List the interrupts of 8051?

UNIT I

2. a) Draw the block diagram of 8086 & Explain it briefly 8M
   b) Write an 8086 ALP to transfer 10 bytes of data 4M

(OR)

3. a) Briefly explain the addressing modes of 8086 with example 6M
   b) Write an 8086 ALP to find number of one's in the given number 6M

UNIT II

4. a) Briefly explain the 8086 minimum mode with read & write timing diagrams 8M
   b) Explain about type 0 and type 2 interrupts in detail 4M

(OR)

5. a) Draw the pin diagram of 8086 & explain the function of each pin 8M
   b) Write an 8086 ALP to find the square root of a given number 4M

UNIT III

6. a) With a neat sketch briefly explain how a keyboard can be interfaced to 8086 6M
   b) Explain about 8259? With a neat sketch explain how it can be interfaced to 8086 6M

(OR)

7. a) Explain about 8237 DMA Controller in detail 6M
   b) Explain about various branch instructions of 8051 6M

UNIT IV

8. a) Explain about various modes of timers in 8051 8M
   b) Explain about bit manipulation instructions in 8051 4M

(OR)

9. a) Explain about serial communication in 8051 6M
   b) Explain about I/O ports of 8051 6M

14CS IT 504

Hall Ticket Number:

III/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2017 **Common for CSE & IT**

Fifth Semester **DATABASE MANAGEMENT SYSYEMS**

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=12Marks)

a) What is Data Independence?
b) Write any three Relationship types.
c) What is Strong entity and Weak entity?
d) Draw three schema architecture.
e) What are the DML & DCL Commands?
f) Define view.
g) Differentiate relationship instance and relationship type.
h) Name the binary relational operations.
i) Define atomicity and durability.
j) Define shadow paging.
k) Define Recoverability.
l) What is meant by Multiple-Granularity?

UNIT I

2. Discuss about ER Models and how do you refine the ER design for a Company Database Using ER diagrams, Naming conventions and some design issues. 12M

(OR)

3. a) Analyze classification of Database Management systems. 6M
   b) List & explain characteristics and responsibilities of Data models. 6M

UNIT II

4. Differentiate Tuple Relational Calculus with Domain Relational Calculus with Examples. 12M

(OR)

5. a) Consider the relational schema R = {E,F,G,H,I,J,K,L,M,N} and set Functional dependencies {{E,F}→{G},{F}→{I,J},{E,H}→{K,L},{K}→{M},{L}→{N}} On R. What are the candidate keys for R. 8M
   b) Explain about JOIN and DIVISION operations with Examples. 4M

UNIT III

6. a) Discuss about the Dynamic Multilevel Indexes. 6M
   b) Give definitions for all Normal Forms and differentiate 3NF & BCNF. 6M

(OR)

7. a) Describe about Relational database schema design.. 6M
   b) Demonstrate operations on files. 6M

UNIT IV

8. a) How do you characterize schedules based on Recoverability. 7M
   b) State and Explain desirable properties in transaction processing. 5M

(OR)

9. Explain any two Database Recovery techniques in detail with examples. 12M

14IT505

Hall Ticket Number:

III/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2017 **Information Technology**

Fifth Semester **Data Communications &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 an interface?
b. What do you mean by bitstuffing?
c. What is the difference b/n LAN and WAN?
d. Name any three methods of error detection
e. What is the functionality of a router?
f. What is flooding?
g. What is the purpose of a choke packet?
h. Define adaptive routing.
i. Difference between packet switching and circuit switching.
j. What is the drawback of UDP protocol?
k. What is the purpose of a RPC
l. Define MIME

UNIT I

2.a Discuss in detail about communication model with neat sketch 6M
2.b Explain about error correction techniques. 6M

(OR)

3.a Explain in detail about OSI model protocol architecture with neat sketch. 8M
3.b Briefly discuss High level data link control protocol 4M

UNIT II

4.a Discuss in detail about circuit switched networks. 6M
4.b Explain about hierarchical routing 6M

(OR)

5.a Explain in detail about congestion control in virtual-circuit subnets. 6M
5.b Draw and explain IPV4 Packet header format 6M

UNIT III

6.a Write short notes on Berkeley Sockets. 4M
6.b Discuss in detail about TCP flow control and buffering 8M

(OR)

7.a Explain about real-time transport protocols. 6M
7.b Explain in detail about TCP connection management. 6M

UNIT IV

8.a Discuss in detail about DNS resource records. 6M
8.b Explain about Simple mail transfer protocol. 6M

(OR)

9.a Explain in detail about Hyper Text Transfer protocol 6M
9.b Differentiate static web documents and dynamic web documents. 6M

14IT506/C

Hall Ticket Number:

III/IV B.Tech (Supplementary) Degree Examination

April, 2017 **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. Answer all questions (1X12=12 Marks)

a List down the different file types?

b What is Kernel?

c What is the difference between awk and sed

d How do you terminate a shell script if statement?

e What is a shell?

f What are shell variables?

g What does u mean by i-node block?

h How do you get parent process identification number?

i What is orphan process in UNIX?

j What are the phases in signaling process

k Define socket?

l What is the use of shared memory

UNIT I

2.a Describe the salient features of UNIX Operating Systems 6M

2.b Draw the block diagram of UNIX system kernel. Explain various components. 6M

(OR)

3.a What is difference between wild cards and regular expressions in **sed**? 6M

3.b Write a program to print prime factors of a number using ***awk*** script. 6M

UNIT II

4.a How will you convert all characters in a file to uppercase without using shell redirection? 6M

4.b What is shell script? Explain the following statements with syntax and examples. 6M

i) if
ii) case
iii) while

(OR)

5.a Differentiate between shell variables and environment variables and user defined variables 6M

5.b Write a shell script to generate a multiplication table. 6M

UNIT III

6.a Explain the following functions with syntax: (a) stat () (b) read () (c) open () (d) close (). 8M

6.b Write a C program that counts the number of blanks in a text file using system calls. 4M

(OR)

7.a What is meant by a process? Explain any four process related system calls with syntax 6M

7.b Write a C program to create a child process and allow the parent to display "parent" and the child to display "child" on the screen. 6M

UNIT IV

8.a	What is signal function? Write and explain about the structure of signal function.	6M
8.b	Write a program to stop and resume a process using signals.	6M

(OR)

9.a	What is semaphore? Explain about the semaphore implementation in UNIX	6M
9.b	Explain about sockets in detail.	6M