

Code: 1G451

III B.Tech. I Semester Supplementary Examinations May 2017

Automata and Compiler Design

(Information Technology)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questionsAll Questions carry equal marks (**14 Marks** each)

1. Write the procedure for finding a DFA equivalent to a given NFA. Construct DFA equivalent to the following NFA. Show the acceptance of the string 00011 on both the FAs.

	0	1
q0	{q0,q1}	{q0}
q1		{q2}
q2		{q3}
q3 (Final State)		

14M

2. a) Explain the role of syntax and semantic analysis phases in a compiler by taking a suitable example(s). 7M
- b) Write the rules/steps to calculate the First and Follow sets of variable in a given CFG. Find First and Follow sets of the variables in the following grammar.
- $S \rightarrow AaBbC$ $A \rightarrow ab / ba / CB /$
 $B \rightarrow bb / cc$ $C \rightarrow abc / Bc$ 7M
3. Explain about the general model of an LR parser with suitable example. 14M
4. a) Write about the advantages of intermediate code? Discuss about three address code with examples. 7M
- b) What is syntax directed translation? Write syntax directed translation for storing the type of a variable into symbol table. (Assume a suitable grammar for the declaration of variables). 7M
5. a) Discuss about polymorphic functions and the type checking of these functions. 7M
- b) What is a type expression? Explain about the equivalence of type expression with suitable examples. 7M
6. a) Explain the process of accessing non local variables information from symbol table in case of nested procedures. 7M
- a) What is the need for dynamic storage allocation? Discuss the methods of dynamic storage allocation strategies. 7M
7. Explain in detail about peephole optimization. 14M
8. a) Discuss in brief about register allocation and assignment? 9M
- b) What is DAG? Explain how DAG is useful in code generation. 5M

Hall Ticket Number :

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R-11 / R-13

Code: 1G153

III B.Tech. I Semester Supplementary Examinations May 2017

Computer Networks

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

1. a) List and explain the four levels of addressing employed in TCP/IP protocols. 7M
b) What networks are used at your college? Describe the network types, topologies, and switching methods used there. 7M
2. a) Distinguish between guided and unguided media. Explain various guided media being in use today. 7M
b) With the help of neat diagram, explain the Structure of the Telephone System. 7M
3. a) A bit string, 011110111110111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing? Explain. 5M
b) Discuss the simplex stop-and-wait protocol. 9M
4. a) With a neat flowchart, explain the working of CSMA/CD protocol. 8M
b) Describe the Dynamic Channel Allocation in LANs and MANs. 6M
5. a) Make a comparison between distance vector routing and link state routing protocols. 8M
b) With the help of example, explain a situation where we use hop-by-hop choke packet. 6M
6. a) Give a note on Mobile IP. 7M
b) Write in detail about Border Gateway Protocol and what are the various types of messages in BGP? 7M
7. a) List the services offered by the Transport layer. 4M
b) Draw and explain the format of UDP Packet. The following is a dump of a UDP header in hexadecimal format.

CB8400D001C001C

- i) What is the source port number?
 - ii) What is the destination port number?
 - iii) What is the total length of the user datagram?
 - iv) What is the length of the data?
 - v) Is the packet directed from a client to a server or vice versa? 10M
8. a) With the help of common scenario explain the architecture and services of e-mail. 7M
b) What do you mean by DNS? Distinguish between Iterative and Recursive name resolution with illustrative examples. 7M

Hall Ticket Number :

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R-11 / R-13

Code: 1G355

III B.Tech. I Semester Supplementary Examinations May 2017

Microprocessors and Interfacing

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

1. a) Explain the functions of the following registers
i) Segment Register
ii) Pointer Register
iii) Index Register 8M
- b) Explain the physical memory organization in an 8086 system 6M
2. a) What are different addressing modes supported by 8086 and explain each with suitable example. 8M
- b) Write an assembly language program to find the factorial of a given number. 6M
3. a) Explain A/D converter interface to 8086 microprocessor 6M
- b) Sketch and explain the interface of PPI 8255 to 8086 microprocessor in minimum mode 8M
4. a) Explain the Static RAM and EPROM interfacing to 8086 microprocessor 6M
- b) Explain the need of DMA. Discuss about DMA data transfer and interfacing of 8257 8M
5. a) Explain the importance of 8259 interrupt controller and explain how it handles the interrupt. 8M
- b) Explain various hardware and software interrupts of 8086 microprocessor 6M
6. a) Explain the architecture of 8251 USART with the help of neat diagram. 8M
- b) Explain TTL to RS232C and RS232C to TTL Conversions 6M
7. a) Explain registers of 80386 and also explain real and protection modes of 80386 7M
- b) Compare architecture of Pentium with 80286 and 80386 7M
8. a) Explain the architecture of 8051 microcontroller with neat diagram and write brief notes on each. 8M
- b) List out the differences between microprocessors and microcontrollers 6M

Code: 1G454*III B.Tech. I Semester Supplementary Examinations May 2017***Unix Programming**
(Information Technology)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (14 Marks each)

1. a) Describe various features of Unix operating system? 8M
- b) Write short notes on the following with example?
 - i. Who command
 - ii. Print Message command
 - iii. Print Command 6M
2. a) Briefly discuss various File types in Unix? 6M
- b) With a suitable example, explain the following?
 - i. chown
 - ii. ps
 - iii. rlogin.
 - iv. uniq 8M
3. a) Explain the concept of Redirection in detail? 7M
- b) Explain various options in sort command with suitable example? 7M
4. a) Discuss various addresses used with sed command with suitable example? 7M
- b) Explain various options with grep command? 7M
5. a) Explain different expressions supported with awk utility? 8M
- b) With a suitable example, explain the following?
 - i. Mathematical Functions
 - ii. User-Defined Functions 6M
6. a) Explain the concept of variables in korn shell with suitable example? 6M
- b) With suitable examples, explain the concept of decision making and repetition statements in korn shell? 8M
7. a)
 - i. Explain eval command in C Shell with examples?
 - ii. Briefly explain On-Off Variables in C Shell? 8M
- b) Explain the Multiway selection with suitable example in C Shell programming? 6M
8. a) Write the syntax and briefly explain the following system calls?
 - i. write
 - ii. stat
 - iii. fstat 6M
- b) Write the syntax and briefly explain the following Directory API?
 - i. opendir
 - ii. closedir
 - iii. rmdir.
 - iv. mkdir 8M
