

Hall Ticket Number :

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**R-11/R-13**

**Code: 1G153**

*III B.Tech. I Semester Supplementary Examinations November 2016*

**Computer Networks**

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

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1. a) Draw and explain OSI reference model in detail 8M  
b) Discuss wireless LANs 6M
2. a) What is switching? Explain circuit switching and packet switching networks 7M  
b) What is PSTN? Explain structure of the telephone system 7M
3. a) What are the design issues of data link layer? Explain 7M  
b) Explain one bit sliding window protocol 7M
4. a) Discuss channel allocation problems 7M  
b) Explain 802.11 protocol stack 7M
5. a) What is flooding? Explain hierarchical routing 7M  
b) What is congestion control? Explain congestion prevention policies 7M
6. Discuss the network layer in the internet 14M
7. What are the transport layer services? Explain the difference between TCP and UDP 14M
8. a) Discuss the world wide web 7M  
b) Write short notes on multimedia 7M

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**Code: 1G154***III B.Tech. I Semester Supplementary Examinations November 2016***Operating Systems**

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

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

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1. a) Define Operating System? State and explain the basic functions or services of an operating system?
- b) Describe the operating system structures.
2. a) Explain process state transition diagram with examples.
- b) Suppose the following jobs arrive for processing at the times indicated, each job will run the listed amount of time

Jobs	Arrival Time	Burst Time ( in secs)
1	0.5	8
2	0.9	4
3	2.0	2

Give Gantt chart illustrating the execution of these jobs using the non pre-emptive FCFS and SJF scheduling algorithms. Compute the average turnaround time and average waiting time of each job for above algorithms.

3. a) What is semaphore? Explain the method of application of semaphore for process synchronization?
- b) Define Monitor. Distinguish between monitor and semaphore. Explain in detail a monitor with notify and broadcast functions using an example.
4. a) Explain about deadlock detection method in detail.
- b) Describe resource-allocation graph? Explain how resource graph can be used for detecting deadlocks.
5. a) Explain contiguous memory allocation concept with advantages and disadvantages.
- b) Consider the following page reference string.:  
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6  
Calculate how many page faults would occur for the following replacement algorithms, assuming the frame size to be 4. Assume that the frames are initially empty
  - i. LRU replacement
  - ii. FIFO replacement
  - iii. Optimal replacement
6. a) Explain indexed file and indexed sequential file organization.
- b) Describe the following Directory Implementation methods?
  - i. Linear list
  - ii. Hash Table
7. a) Explain magnetic disk structure and its management.
- b) Exemplify swap space management.
8. a) Describe how the matrix facility and role-based access control facility are similar? How do they differ?
- b) Briefly explain about computer security classifications.

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<b>R-11/R-13</b>
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**Code: 1G355**

*III B.Tech. I Semester Supplementary Examinations November 2016*

## **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)

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|----|---|-----|
| 1. | a) Explain different registers in 8086  | 10M |
|    | b) Discuss the advantages of segmentation   | 4M  |
| 2. | a) Write alp to find the largest number in an array of words  | 4M  |
|    | b) Using string instruction and assembler directives insert the word "college" in "I am student" after I am.      | 10M |
| 3. | a) Differentiate I/O and memory mapped I/O interfacing.   | 4M  |
|    | b) Explain the 8255 block diagram   | 10M |
| 4. | a) List the differences between SRAM and DRAM   | 4M  |
|    | b) Design the interfacing structure to connect four 8K RAMs and two 8K ROMs to 8086 processor.                    | 10M |
| 5. | a) Explain the structure of interrupts in 8086.   | 7M  |
|    | b) With neat block diagram discuss bout 8253.   | 7M  |
| 6. | a) Write a program to transfer data serially with odd parity, 7-bit character code, one stop bit at speed of 16x. | 7M  |
|    | b) What is the necessity of RS232 to TTL conversion? How to convert.  | 7M  |
| 7. | a) Find the differences between real and protected mode.  | 4M  |
|    | b) Write short notes on how the features implemented in Pentium processor improve the performance.                | 10M |
| 8. | a) Explain internal memory architecture of 8051.  | 10M |
|    | b) Write the program to multiply two numbers in 8051.   | 4M  |

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**R-11/R-13**

**Code: 1G151**

*III B.Tech. I Semester Supplementary Examinations November 2016*

**Compiler Design**

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions

All questions carry equal marks ( 14 Marks each )

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1. a) Draw the transition Diagram for identifiers, constants and relational operators 7M  
b) Construct an NFA for the regular expression  $r = (aa)^*. (bb)^* + a(aa)^*. b(bb)^*$  7M
2. Construct the predictive parsing table for the following grammar  
 $S \rightarrow L = R / R ; L \rightarrow *R / id \quad R \rightarrow L$  14M
3. a)  $S \rightarrow Aa / bAc / Bc / bBa$   
 $A \rightarrow d , B \rightarrow d$  Find the collection of sets of LR(0) items 8M  
b) Construct the SLR parsing table  
 $S \rightarrow (S)S / \epsilon$  6M
4. a) Construct the LR(1) items for the following grammar  
 $S \rightarrow CC$   
 $C \rightarrow aC / d$  8M  
b) Describe in detail about abstract syntax tree 6M
5. a) Explain the Applications of syntax directed translations 10M  
b) Define S-Attributed and L-Attributed Definitions 4M
6. a) Draw the DAG for the arithmetic expression  $a + a * (b - c) + (b - c) * d$ . Show the steps for constructing the DAG 10M  
b) Define and explain the Back-patching? 4M
7. a) Write an algorithm for constructing the natural Loops 7M  
b) What is Flow graph? How given program can be converted into flow graph? 7M
8. a) Explain the code generation algorithm and generate code for the following expression  $x = (a - b) + (a + c)$  10M  
b) Explain about various object code forms 4M

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