IV B.Tech. I Semester Supplementary Examinations May 2017
Computer Networks
(Electronics and Communication 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) What is the need for modulation and demodulation in RF communication? 4M

   b) Compare and contrast between the characteristics of fiber optic cable and that of twisted pair wires as guided medium for communication. 10M

2. a) What are services provided by the data link layer to its upper layer in the OSI protocol stack? 6M

   b) Write a pseudocode to implement a 1-bit sliding window protocol. 8M

3. a) What are specific roles of MAC sublayer in the ISO OSI protocol stack? Name some standard MAC protocols. 6M

   b) Demonstrate the "hidden station problem" and "exposed station problem". State the counter measures to mitigate this problem. 8M

4. a) Distinguish between connection-less and connection-oriented services. 4M

   b) State whether flooding algorithm is optimal in network of larger size. Bring out the features of hierarchical routing. 10M

5. a) List the classes of IPv4 addresses. Identify the IPv4 class of the address: 201.239.14.162 6M

   b) Define and explain the terms "Subnet" and "Network Address Translation". 8M

6. a) Illustrate the transport layer service primitives with a state diagram. 7M

   b) Explain the characteristics of TCP sockets. List and specify the purpose of standard TCP ports. 7M

7. a) Compare and contrast between the POP3 and IMAP protocols. 7M

   b) Enumerate the HTTP request methods and status code response messages. What is the meaning of the following status code responses? 405 and 500. 7M

8. a) What is the use of encryption? Distinguish between symmetric key and public key cryptography standards. 7M

   b) Describe the principles of DES encryption mechanism emphasizing the details of number of stages and size of the plaintext and key used. 7M

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R-11/R-13

Code: 1G373

IV B.Tech. I Semester Supplementary Examinations May 2017
Digital Design Through Verilog HDL
(Electronics and Communication 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)	Explain about simulation and synthesis	5M
	b)	Explain about Programming Language Interface.	9M
2.	a)	Draw the logic symbols of tri-state gates and explain	7M
	b)	Write about Verilog Operators, and its precedence in detail.	7M
3.	a)	Explain about blocking and non-blocking assignments with example.	7M
	b)	Write the Verilog code for 2X4 Decoder in behavioural model.	7M
4.	a)	Design Half subtractor using switch level modeling.	6M
	b)	Design Encoder and write dataflow model.	8M
5.		Design a 4 bit carry look ahead adder using gate modelling.	14M
6.	a)	Explain about linked state machines.	5M
	b)	Design a sequence detector which detects the sequence 1101.	9M
7.	a)	Explain about Xilinx 3000 series FPGAs.	10M
	b)	B) Write the differences between FPGAs and CPLDs.	4M
8.	a)	Explain about static RAM memory Verilog model.	7M
	b)	Explain about electronic Dice controller.	7M

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R-11 / R-13

Code: 1G371

IV B.Tech. I Semester Supplementary Examinations May 2017
Optical Communication
(Electronics and Communication 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) Discuss the Historical Developments of Optical Fiber Communications   6M

    b) Explain the following:
        i)   Total Internal Reflection
        ii) Acceptance and Critical angle   8M

2. a) What is meant by fiber splicing? Explain fusion splicing of optical fibers?   7M

    b) What are the measurement technique used for
        i) Fiber cut-off wave length
        ii) Fiber diameter   7M

3. a) Explain the concept of Dispersion in fiber losses in detail and how can you
        overcome these losses?   7M

    b) Give short notes on
        i)   Fiber connectors
        ii) optical isolators and circulators   7M

4.   With the help of a neat diagram explain the construction and working of a
        surface emitting LED?   14M

5. a) With neat schematic describe the expanded beam fiber connector?   7M

    b) What are the different Lensing schemes for Coupling Improvement? explain   7M

6.   Give the structures for InGaAs APDs and compare the different photo diodes?   14M

7.   Discuss the Radio and RF fiber analog links?   14M

8 a)   Explain the operational principles of WDM   7M

   b)   Write shot note on passive components in WDM   7M

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Code: 1G47D

IV B.Tech. I Semester Supplementary Examinations May 2017
Object Oriented Programming
(Electronics and Communication Engineering)

Max. Marks: 70   **Time: 03 Hours**
Answer *any five* questions
All Questions carry equal marks (**14 Marks** each)
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1. a) Write short notes on the following
   i) Scope of variables
   ii) Data types in Java   8M

   b) Write a Java program to print first n prime numbers.   6M

2. a) Write short notes on the following

   i) Constructors
   ii) 'this' keyword in Java   8M

   b) Using String class, describe the concept of immutable classes and how
      objects of that classes work differently.   6M

3. a) Describe in detail the different types of inheritance.   8M

   b) What is Super keyword? Explain the usage of super keyword in different
      context with an example.   6M

4. a) Explain about packages in Java and the accessibility of the variables in
      packages with respect to their access specifiers.   7M

   b) Describe in detail the process of defining, creating and accessing a package
      highlighting the role of environment variable 'CLASSPATH'   7M

5. a) Explain about the keywords try, catch, throw, throws and finally. Write a Java
      program to create a user defined exception which handles out of funds
      exception in a bank.   8M

   b) Describe in detail the life cycle of a Thread in Java.   6M

6. a) List AWT components with their usages. What are different layout managers? 7M

   b) Explain methods of Key Listener and Mouse Listener interfaces.   7M

7. a) Write short notes on
      i) MVC Architecture
      ii) Containers   8M

   b) Give life cycle of an applet by giving differences between applets and
      applications.   6M

8. Write short notes on
      i)   public int getLocalPort()
      ii) public Socket accept() throws IOException
      iii) public void setSoTimeout(int timeout)
      iv) public void bind(SocketAddress host, int backlog)   14M

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IV B.Tech. I Semester Supplementary Examinations May 2017
Radar Engineering
(Electronics and Communication 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)	Explain working principle of Radar system along with its applications	3M
	b)	Derive the range equation and discuss about its limitation.	7M
	c)	Discuss about detection of signals in noise.	4M
2.	a)	How is the effect due to cross-section fluctuations of targets minimized?	7M
	b)	Describe how pulse repetition frequency of a Radar system controls the range of it's detection?	7M
3.	a)	Several factors tend to spread the CW signal energy over a finite band of frequencies -Explain?	7M
	b)	Explain with necessary block schematic and analysis, how Doppler direction is identified with CW radar.	7M
4.	a)	With a neat block diagram, explain how a CW Radar is used for the determination of the relative velocity of a target.	7M
	b)	What is the importance of providing isolation between transmitter and receiver? Explain clearly the different method of providing isolation in the case of CW Radar.	7M
5.	a)	With a neat block diagram, explain the functioning of a MTI radar with power oscillator type of Transmitter.	8M
	b)	List out the limitations and describe the limiting parameters that govern the performance of MTI radars.	6M
6.	a)	Explain the block diagram of amplitude comparison monopulse radar for single angular coordinate and explain its operation.	9M
	b)	How many techniques are employed to track a radar target? Explain that technique which employs one single pulse for extracting error information.	5M
7.	a)	Define and derive the characteristics of a matched filter receiver.	6M
	b)	Explain and distinguish between the terms: Optimum receiver, Cross correlation receiver.	8M
8.	a)	Bring out the requirements for duplexers and list out the different types.	7M
	b)	Write notes on feed illumination angle, feed support, and f/d ratio with reference to radar antennas.	7M

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