Hall Ticket Number :										

R-11 / R-13

Code: 1G478

IV B.Tech. I Semester Supplementary Examinations Nov/Dec 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) Explain OSI reference model and compare it with TCP/IP 7M

   b) How the message switching implemented in circuit switching networks? Explain with an example 7M

2. a) PPP (Point to Point Protocol) is based closely on HDLC, which uses bit stuffing to prevent accidental flag bytes within the payload from causing confusion. Give reasons why PPP uses character stuffing instead. 7M

   b) What is the problem in Go-Back-N protocol? How it can be solved. 7M

3. a) Discuss briefly about MAC layers in the 802.11 standard 7M

   b) Explain in detail about the physical layer in the fast Ethernet 7M

4. a) Explain briefly about the shortest path routing algorithm 8M

   b) What is datagram network? Compare and contrast of virtual circuit and datagram networks 6M

5. a) What is packet fragmentation? Briefly explain and compare transparent and non-transparent fragmentation 8M

   b) Explain in detail about IPV4 packet format with a neat diagram 6M

6. a) Define sliding window? Explain in detail about TCP sliding window protocol with a neat diagram 7M

   b) Why is UDP faster than TCP? Differentiate between UDP and TCP 7M

7. a) Discuss in detail about RFC5322 internet message format 6M

   b) Explain HTTP Transaction with an example. 8M

8. a) List the important aspects of symmetric and public key encryption algorithms. 6M

   b) Explain briefly the following terms: (i) stream cipher mode (ii) counter mode 8M

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Hall Ticket Number :										

R-11 / R-13

Code: 1G372

IV B.Tech. I Semester Supplementary Examinations Nov/Dec 2017

Digital Signal Processing

(Common to EEE & ECE)

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 are the major classifications of signals? Illustrate each with suitable examples. 4M

   b) Determine the unit step response of an LTI system characterized by the following difference equation $y(n)-5y(n-1)+6y(n-2)=x(n)$, where $x(n)$ is the input and $y(n)$ is the output. 10M

2. a) Find the amplitude and phase spectrum of a time shifted impulse signal $f(n)=10\,¢(n-2)$ 4M

   b) Determine the 4-point DFT of the of the sequence $x(n)=\cos\frac{n®}{4}$ 10M

3. a) State and prove the circular convolution property of DFT for two finite sequences. 4M

   b) Compute 8 point DFT of the sequence x(n)=[1,2,3,4,4,3,2,1] using DIT-FFT algorithm 10M

4. a) With reference to z transform, state initial and final value theorems. 4M

   b) Obtain direct and cascade realization of FIR linear phase filter with system function

   $$H(z)=\left(1+\frac{1}{2}z^{-1}+z^{-2}\right)\left(1+\frac{1}{4}z^{-1}+z^{-2}\right)$$ 10M

5. a) Use bilinear transform to design a 1st order Butterworth LPF with 3dB cut-off frequency of 0.2π radian 7M

   b) Realize the system with transfer function, $H(z)=\frac{(1-z^{-1})^3}{(1-0.5z^{-1})(1-0.125z^{-1})}$ in parallel form 7M

6. a) Discuss how the frequency response of FIR filter get affected using (**i**) Rectangular, (**ii**) Hanning, (**iii**) Bartlett, (**iv**) Hamming, and (**v**) Kaiser windowing? 6M

   b) The desired frequency response of LPF is

   $$H_d(w)=\begin{cases} e^{-j3w}, & -\frac{3®}{4}\le w\le +\frac{3®}{4} \\ 0, & \frac{3®}{4}\le |w|\le ® \end{cases}$$

   Determine $H(w)$ for order, M=7 using rectangular window? 8M

7. a) Express the polyphase FIR filter implementation of decimator and interpolator by a factor of 2. 7M

   b) A one stage decimator is characterized by the following: Decimation factor=3, Anti-aliasing filter coefficients; h(0)=h(4)= --0.08, h(1)=h(3)=0.3, h(2)=0.8. Given the data, x(n)=[5, --2, --3, 10, 6, 4, --2], calculate the list of the filtered output w(n) and the output of the decimator y(m). 7M

8. a) What is subband coding? Draw the analysis and synthesis method of subband coding of a signal? 7M

   b) What is digital transmultiplexer? With suitable diagram explain the conversion of FDM-TDM and vice versa using transmultiplexers? 7M

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Hall Ticket Number :										

R-11 / R-13

Code: 1G371

IV B.Tech. I Semester Supplementary Examinations Nov/Dec 2017

Optical Communications

(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 7M

   b) Explain the following

      i) Total Internal Reflection ii) Acceptance and Critical angle 7M

2. a) Describe the single mode fibers in detail 7M

   b) Given core refractive index of 1.48 and relative refractive index difference 1.5% for a single mode fiber operating at 0.85µm, Find

      i) the maximum core diameter

      ii) new maximum core diameter if relative refractive index difference is reduced by a factor of 10. 7M

3. a) Explain the concept of Dispersion in fiber losses in detail. 7M

   b) Give short notes on

      i) Fiber connectors ii) optical isolators and circulators 7M

4. a) Discuss LED Structures with neat sketches 7M

   b) Explain Laser diode Modes and threshold conditions 7M

5. a) Brief out Fiber to Fiber Joints concept with required diagrams 7M

   b) Explain LED Coupling to single mode fibers 7M

6. a) Explain Noise concept in Photo detector 7M

   b) Give a comparative analysis of various Photodiodes 7M

7. Discuss basic elements in Analog links with block diagram 14M

8. a) Explain the operational principles of WDM 6M

   b) Write short notes on Tunable light Sources. 8M

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Hall Ticket Number :										

R-11 / R-13

Code: 1G47D

IV B.Tech. I Semester Supplementary Examinations Nov/Dec 2017

Object Oriented Programming

(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 are the features that are provided to make a program modular? 7M

   b) What are the type conversion and costing in object oriented programming. 7M

2. Write a java program to create one Registration page contains following and perform following using Swing, eventhandlng ?
   - Contains text field to enter Name, Phone No, Email ID, Registration No, Roll No, login Id and pass word field to enter password and confirm password
   - It contains Radio button for gender like male and female and check boxes for hobbies like play,read,chatetc
   - It contains 2 combo box for stream like B.TECH,M.TECH,PHD and for branch like CSE,ME,EE,ETC,CE etc
   - It contains two buttons Submit and Reset.
   - By clicking on Reset button all the fields of RegistrationPage will be set to Default 14M

3. Define Synchronization? Why is it needed? Write a java program to explain the need of synchronization in multithreading with suitable example? 14M

4. a) Define method overloading? Can a method will be overloaded by simple simply changing its return type? Justify your answer?

   Write a java program to print following using method overloading and interface?

```
            1
        2       3
    4       5       6
7       8       9       10
```

```
            +
        +       +
    +       +       +
+       +       +       +
```

7M

   b) Define inheritance? Why is multiple inheritance not supported by java?

   Write a java program to compute volume, cost and weight of a box using multilevel inheritance? use super keyword at appropriate places? 7M

5. a) Define Exception and its types?

   Write a java program to create your own InsufficientFundException for bank which arises whenever customer want to withdraw certain amount form his account in bank and he does not have that much of balance in his account? This Exception will alert the customer that he need to deposit the required amount in his account before withdraw? 7M

   b) What is package? Write a program to findout sum of product of consecutive digits of a number using interface, and package? Suppose Number is 12345 then Result will be 1*2 + 2*3 +3*4 +4*5 7M

6. a) What is the difference between length() and capacity() method of string buffer? Write a java program to sort 10 strings in alphabetical order using command line arguments? 7M

   b) What is the difference between Panel and Frame? Write a java program to create one blinking message using applet? 7M

7 a) What is network? Write a java program to create chat application in which client will say hi then server will reply as hello using socket programming? 7M

   b) Write a java program to search a number in an array of 10 numbers using binary search? 7M

8. Write Short Notes on any Two 14M

   a) MVC Architecture

   b) Life cycle of Thread

   c) Bytecode

   d) AWT

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