

Hall Ticket Number :

**R-14**

**Code: 4G479**

IV B.Tech. I Semester Supplementary Examinations November 2018

**Computer Networks**

(Electronics and Communication Engineering )

Max. Marks: 70

Time: 3 Hours

Answer *all* five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) Explain ISO/OSI reference model with neat diagram. 8M
- b) Explain Wireless Transmission in brief. 6M

**OR**

2. a) Explain with the neat diagram coaxial and fiber optics. 8M
- b) Explain the structure of Telephone System. 6M

**UNIT-II**

3. a) Discuss the framing technique used in HDLC. 8M
- b) The message 11001001 is to be transmitted using CRC error detection algorithm. Assuming the CRC polynomial to be  $x^3+1$ , determine the message that should be transmitted. If the second left most bit is corrupted, show that is detected by the receiver. 6M

**OR**

4. a) Explain in detail about Ethernet. 6M
- b) With an example explain the sliding window protocols 8M

**UNIT-III**

5. Classify the routing algorithms. Describe in detail about flooding, and shortest path routing algorithms. 14M

**OR**

6. Explain sub netting with help of example. 14M

**UNIT-IV**

7. a) Explain the duties of transport layer. 6M
- b) Explain elements of transport protocol. 8M

**OR**

8. Explain TCP Header with neat diagram. 14M

**UNIT-IV**

9. Explain Email in detail. 14M

**OR**

10. Explain RSA Algorithm with the help of example. 14M

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Code: 4G372

IV B.Tech. I Semester Supplementary Examinations November 2018

**Electronic Measurements and Instrumentation**

( Electronics and Communication Engineering )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) A basic 'D' Arsonval movement with an internal resistance  $R_m = 50\Omega$  and full scale current  $I_{fsd} = 0.5\text{mA}$  is to be converted into a multistage D.C voltmeter with ranges of 0-10V, 0-50V and 0-250V. Show the arrangement with the help of neat diagram with the values of resistances used?

- b) Explain the operation of Ramp type digital voltmeter

**OR**

2. a) What is Ayrton shunt? Describe it with a neat sketch.
- b) Design a universal Ayrton shunt to provide an ammeter with current ranges of 1A, 5A, and 10A using a D'Arsonval movement with an internal resistance  $R_m = 50\Omega$  and full scale deflection current of 1mA.

**UNIT-II**

3. a) Explain the operation of harmonic distortion analyzer.
- b) Draw and explain the operation of Function generator.

**OR**

4. a) Draw the block diagram of a pulse generator and explain the operating principle.
- b) Explain about Frequency synthesized signal generator.

**UNIT-III**

5. Draw the neat diagrams of vertical and horizontal deflection systems of CRO and explain their working in detail.

**OR**

6. a) With a neat sketch Explain about Sampling Oscilloscope.
- b) Describe the different types of Oscilloscope probes.

**UNIT-IV**

7. a) Calculate the equivalent parallel resistance and capacitance that causes a Wien bridge to null with the following component values.

 $R_1 = 2\text{k}\Omega$ ,  $C_1 = 0.1\mu\text{F}$ ,  $R_2 = 10\text{k}\Omega$ ,  $R_4 = 20\text{k}\Omega$ ,  $f = 1\text{kHz}$ 

- b) Explain the operation of Kelvin bridge using relevant diagram.

**OR**

8. a) Draw the circuit diagram of Schering bridge and derive conditions for balance?
- b) The self-capacitance of a coil is measured by using the Q-meter. The first measurement is at  $f_1 = 1\text{MHz}$  and  $C_1 = 500\text{pF}$ . The second measurement is at  $f_2 = 2\text{MHz}$  and  $C_2 = 110\text{pF}$ . Find the distributed capacitance and also calculate the value of L.

**UNIT-V**

9. What is transducer? Explain how the LVDT converts displacement into voltage.

**OR**

10. a) Derive the expression for gauge factor of strain gauge
- b) With a neat sketch Explain Strip chart recorder.

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Hall Ticket Number :										
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<b>R-11 / R-13</b>
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**Code: 1GA71**

IV B.Tech. I Semester Supplementary Examinations November 2018

**Management Science**

( 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) Discuss line, line and staff and matrix organizations? 7M  
b) Explain what do you understand 'managerial objectives.' give any four managerial objectives? 7M
2. a) Discuss the duties of purchase manger in detail? 7M  
b) Classify inventories? Explain with examples? 7M
3. a) What is new product design? Discuss the stages of a new product? 7M  
b) Differentiate productivity and production? 7M
4. a) List out the Functions of Human Resource Management? Explain? 7M  
b) What are the duties of personal manager ? 7M
5. a) What is crashing of a network? discuss with your own example? 7M  
b) Describe Gantt chart and milestone charts? 7M
6. a) What is a strategic business unit ? discuss the role and relevance in corporate planning? 7M  
b) Discuss the Significance of corporate goals? 7M
7. a) Identify and discuss the stages in the process of strategy formulation and implementation? 7M  
b) Discuss in brief of the following.  
(i) JIT  
(ii) Supply chain management 7M
8. a) What are the normative ethical theories? Discuss? 7M  
b) Explain the Characteristics of ethical organization? 7M

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Code: 4G377

IV B.Tech. I Semester Supplementary Examinations November 2018

**Nano Electronics**

( Electronics and Communication Engineering )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) Write different types of microscope to study nanomaterial? Give a brief idea about different kinds of scanning microscope. 7M
- b) Explain the working of TEM with a neat sketch. 7M

**OR**

2. a) Explain the growth mechanism and diameter dependent properties of nanotubes. 7M
- b) Compare SWNT and MWNT. 7M

**UNIT-II**

3. a) What is heterostructure? Write a fabrication method of quantum dot. 7M
- b) Explain nanoimprint lithography. What is split gate technology? 7M

**OR**

4. a) What do you understand by the terms 'quantum dot' and 'nanoparticle'? 7M
- b) Explain a technique to fabricate quantum wires. 7M

**UNIT-III**

5. a) What are the advantages of QCA circuits? 7M
- b) Discuss the device applications of quantum dot arrays. 7M

**OR**

6. By using necessary schematic, explain the principle and operation of Electron Spin Transistor. 14M

**UNIT-IV**

7. a) Compare tunneling diode and resonant tunneling diode. Explain the operation of three terminal RTDs technology. 10M
- b) What do you understand intraband resonant tunneling? 4M

**OR**

8. a) What is Coulomb blockade? Explain the principal of SET and SET memory circuit design. 8M
- b) Compare FET and SET circuit design. 6M

**UNIT-V**

9. a) Explain different physical limits of integrated electronics. 7M
  - b) Discuss processing methods of complex integrated systems. 7M
- OR**
10. a) Discuss reliability issues of integrated electronics. 5M
  - b) Explain an application of Nano systems as information processing machines with necessary diagram. 9M

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Hall Ticket Number :										
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<b>R-11 / R-13</b>
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**Code: 1G47D**

IV B.Tech. I Semester Supplementary Examinations November 2018

**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 is an object-oriented programming? How is it different from procedure-oriented programming  
b) What are the features of java? explain them briefly
2. a) Explain about garbage collection  
b) What is the method overloading? explain with an example
3. a) What is inheritance explain different types of inheritance.  
b) What are the different advantages of inheritance explain them briefly
4. Write a program to create package pkg1 which includes an interface ABC with two methods Read() and Area() and a constant PI. create another package pkg2 which includes two classes circle and rectangle, implement ABC interface to compute area of circle and area of rectangle.
5. a) Differentiate between checked exception and unchecked exception  
b) What is the use of throw and finally key words explain with example
6. What is the task performed by layout manager explain in detail different layout managers?
7. a) Write the differences between applet and applications  
b) What are the mandatory attributes of applet tag explain them
8. Explain about various networking classes and interfaces available in java

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Hall Ticket Number :

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**R-14**

**Code: 4G47A**

IV B.Tech. I Semester Supplementary Examinations November 2018

**Object Oriented Programming**

( Electronics and Communication Engineering )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) How java is more secure than other languages discuss briefly  
b) What is data type? explain data types in java with example

**OR**

2. a) Define constructor. Explain different types of constructors with example.  
b) Give a brief description about the various parameter passing techniques.

**UNIT-II**

3. a) What is inheritance? Explain various forms of inheritance with example  
b) Explain the use of super () method in invoking a constructor.

**OR**

4. Create a base class with an abstract call () method that is overridden in a derived class. The overridden version of method prints the value of an int variable defined in derived class. Write the java program for printing the value.

**UNIT-III**

5. a) What are exception types? What happens if we don't handle an exception?  
b) Differentiate between multithreading and multitasking.

**OR**

6. Draw and explain in detail about thread life cycle

**UNIT-IV**

7. a) What is a socket? Explain socket class in java.  
b) Describe about the life cycle of an applet.

**OR**

8. a) Explain in detail about Scanner class.  
b) Explain the method of passing parameter to an applet.

**UNIT-V**

9. a) What is the purpose mouse events explain any four mouse events  
b) Describe the usage of event listener with an example

**OR**

10. a) What are the limitations of AWT discuss them briefly  
b) Discuss about Model View Controller Architecture (MVC)

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Code: 4G37C

IV B.Tech. I Semester Supplementary Examinations November 2018

# Digital Signal Processing (Substitute Subject)

( Electronics and Communication Engineering )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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## UNIT-I

1. a) Obtain the DTFS coefficients of  $x(n) = \cos\left(\frac{16\pi}{13}n + \frac{\pi}{6}\right)$ . Plot its magnitude and phase. 6M
- b) Find the N point DFT of the sequence.  
 $x(n) = 4 + \cos^2\left(\frac{2\pi n}{N}\right)$ ;  $n = 0, 1, 2, \dots, N-1$ . For  $N=8$  8M

OR

2. a) Evaluate linear convolution of the following sequences using DFT and IDFT  $x(n) = \{2, 1\}$  and  $h(n) = \{1, 2\}$  8M
- b) Prove the following properties:
  - i) Convolution periodic discrete time sequences.
  - ii) Time shift property of discrete time aperiodic sequence. 6M

## UNIT-II

3. a) Find the Eight point DFT of the sequence,  $x(n) = \{1, 1, 0, -1, -1, -1, 0, 1\}$  by Decimation in frequency FFT algorithm. Use the Eight point radix-2 DIT-FFT algorithm to find the DFT of the sequence  
 $x(n) = \left\{\frac{1}{\sqrt{2}}, 1, \frac{1}{\sqrt{2}}, 0, -\frac{1}{\sqrt{2}}, -1, -\frac{1}{\sqrt{2}}, 0\right\}$  7M
- b) The DFT  $X(K)$  of sequence is given as  
 $X(K) = \{0, 2\sqrt{2}(1-j), 0, 0, 0, 0, 2\sqrt{2}(1+j)\}$   
 Determine the corresponding time sequence  $x(n)$  using DIF-FFT and draw its flow graph. 7M

OR

4. a) What are the differences and similarities between DIT and DIF – FFT algorithm? Discuss in-place computation in the case of decimation in frequency algorithm. 6M
- b) Let  $x(n) = \left(1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}\right)$  and  $h(n) = (1, 1, 1, 1)$ . Compute the DFTs of  $x(n)$  and  $h(n)$  by the decimation in frequency algorithm. Using the above results, evaluate the circular convolution of  $x(n)$  and  $h(n)$ . 8M

## UNIT-III

5. a) Design an analog Butterworth filter that has a gain of -2dB at 20rad/sec. and attenuation in excess of 10dB beyond 30 rad/sec. 7M
- b) Find  $H(z)$  using impulse invariance method for the following transfer function.  
 $H_a(s) = \frac{(s+a)}{(s+a)^2 + b^2}$  7M

OR

6. a) Design a Butterworth low pass digital filter using bilinear transformation to meet the following specification.
- i) An acceptable pass band ripple of 1db
  - ii) A pass band edge of 0.3 rad. &
  - iii) Stop band attenuation of 40db or greater beyond 0.6 rad.
- 8M

- b) The transfer function of a system is given by

$$H(z) = \frac{\frac{1}{4}z^{-1}}{1 - \frac{3}{4}z^{-1} + \frac{1}{8}z^{-2}}$$

Realize the above using direct form I, direct form II.

6M

UNIT-IV

7. a) Explain the frequency sampling method of designing FIR filters and draw the corresponding block diagram. 7M
- b) The frequency response of an FIR filter is given by
- $$H(\omega) = e^{-j3\omega} (1 + 1.8\cos\omega + 1.2\cos 2\omega + 0.5\cos 3\omega)$$
- Determine the coefficients of the impulse response  $h(n)$  of the FIR filter 7M

OR

8. a) Design a FIR low pass filter with the frequency response, using rectangular window.

$$h_d(\omega) = e^{\frac{-j\omega(N-1)}{2}} \quad -\frac{\pi}{2} \leq \omega \leq \frac{\pi}{2}$$

$$= 0 \quad ; \text{ elsewhere}$$

For  $N=7$

7M

- b) A filter is to be designed with the following desired frequency response

$$H_d(\omega) = 0 \quad ; \quad -\frac{\pi}{4} < \omega < \frac{\pi}{4}$$

$$= e^{-j2\omega} \quad ; \quad \frac{\pi}{4} < |\omega| < \pi$$

Find the frequency response of the FIR filter designed using rectangular window defined as given below:  $w_R(n) = 1; -5 \leq n \leq 5$

7M

UNIT-V

9. a) Analyse the basic concepts of spectral analysis of non-stationary signals. Explain how short-time Fourier transform used in the analysis. 7M
- b) With the diagram, explain the oversampling sigma-delta A/D converter structure. 7M

OR

10. a) Why signal compression is required? With the relevant block diagram discuss the functioning of signal compression system. 7M
- b) Explain the concept of single echo filter and multiple echo filter of time domain operations in musical sound processing. 7M

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Hall Ticket Number :

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**R-14**

**Code: 4G375**

IV B.Tech. I Semester Supplementary Examinations November 2018

**Television Engineering**

( Electronics and Communication Engineering )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) With a neat block diagram, explain the working of a TV transmitter in detail.  
b) Write short notes on: i) Aspect Ratio ii) Kell factor iii) Persistence of vision iv) Resolution

**OR**

2. a) With a neat block diagram explain the operation of basic TV Transmitter  
b) Explain the importance of interlaced scanning with a neat diagram.

**UNIT-II**

3. a) Differentiate between a monochrome and colour TV camera tubes.  
b) Explain the monochrome picture tube working with a neat sketch.

**OR**

4. State and briefly explain about characteristics of picture tube? Explain silicon diode array vidicon camera tube with neat diagram.

**UNIT-III**

5. a) Discuss briefly about sync separation and processing in monochrome television receiver.  
b) Explain the functioning of IF subsystem in monochrome TV receiver.

**OR**

6. Draw the block diagram of the sound section of a monochrome TV receiver and explain the functions performed by each block.

**UNIT-IV**

7. a) Draw the block diagram of VHF tuner of TV receiver and explain.  
b) Explain how accuracy is achieved and maintained by using digital tuning of electronic tuners with block diagram.

**OR**

8. a) What are the functions performed by a TV receiver tuner?  
b) Explain the block diagram of digital FM detector.

**UNIT-V**

9. a) Explain the working principle of color killer circuit with a neat sketch  
b) Explain the PAL-D decoder with the help of a neat block diagram.

**OR**

10. a) Draw the block diagram of PAL encoder & decoder and explain its functioning. Compare its performances with NTSC system.  
b) Why a burst of subcarrier is sent along with the sync & blanking pulses.

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