Code No.: 30537 | MR13

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Computer Networks**

Branch: **ECE**

Time: 3 hours **Max. Marks: 75**

PART-A

I. Answer the following Questions **5×1=5M**

1. TCP stands for?
2. What are the various protocols used for controlling the flow of data.
3. Define uni-cast.
4. what is UDP?
5. What do you mean by FTP?

II. Answer the following Questions **10×2=20M**

1. Mention the different components available in computer networks.
2. Describe upward multiplexing
3. Write about IEEE 802.11
4. Differentiate the Thick ETHERNET and Thin ETHERNET
5. What is masking. What its use
6. What are the different types of classes in internet addressing system?
7. Mention the techniques that improve the Quality of Service.
8. What is QOS?
9. What are the responsibilities of Application Layer
10. Where do we use DNS in internet?

PART-B

Answer the following Questions **5×10=50M**

1. What is a switched network ? Explain any one technique in detail

OR

2. a) What are the reasons for using Layered Protocals.
   b) Explain Packet switched networks with neat diagram.
3. What is Channelization, write about TDMA, FDMA and CDMA.

OR

4. Explain the Noisy channels in data link layer
5. a) Explain shortest path routing algorithm with an example.
   b) Explain address mapping and the protocols involved in that.

OR

6. Write about ICMP in detail.
7. a) Compare and contrast UDP and TCP.
   b) Explain the procedure adopted to control the congestion in transport layer

OR

8. Explain Connection Establishment and release mechanism in TCP briefly.
9. Explain in detail about Cryptography and why is it so important to protect the data.

OR

10. Write short notes on the following:
    a) http request methods (b) Encryption & Decryption

Code No.: **30B04/40B04** | **MR13/ MR14**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Human Values and Professional Ethics**

Branch: **Common to ME, ECE & MINING**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. Define Morals.
2. What is self discipline?
3. Define Trade marks.
4. What are basic human aspirations?
5. What is Negative Stress?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. Discuss briefly the importance of Time Management.
2. Why you need to be more empathetic than sympathetic to others?
3. Discuss the concept of Self Interest?
4. Why understanding one's self is essential to understand others?
5. What is the difference between personal ethics and professional ethics?
6. Briefly describe ethical theories.
7. Discuss the meaning of Universal Brotherhood.
8. How value education impacts professional life?
9. What are the advantages of positive attitude?
10. Briefly describe learning skills

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. Explain the process of time management.

(OR)

2. Commitment & cooperation are directly proportional. Explain?
3. Describe the process of self appraisal system.

(OR)

4. What is self-exploration? Write its need and purpose for an individual.
5. Explain Gilligan's theory based on gender of humans?

(OR)

6. What is the use of ethical theories on professional roles?
7. "Education without values is useless". Elucidate the statement.

(OR)

8. 'Value education plays an important role in creating an ideal society'. Elaborate.
9. Describe the influencing factors of stress on human health.

(OR)

10. Why an individual need to develop positive attitude?

Code No.: **30417/40417** **MR13 & MR14**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Digital Communications**

Branch: **ECE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. What are the advantages of digital communication?
2. What is the transmission Bandwidth for FSK signal?
3. Write the difference between Uncertainity and Information.
4. Define Code Rate in Error Control Coding.
5. State how fast frequency hopping differs from slow frequency hopping.

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. A TV signal with a bandwidth of 4.2MHz is transmitted using binary PCM, the no. of quantization levels is 512, calculate code word length and transmission bond width.
2. What is the Nyquist sampling interval for Sinc100πt?
3. Write equation of the transmitted signal s(t) for QPSK and ASK techniques.
4. Draw the PSD of ASK and BPSK systems.
5. Define Matched filter and mention any two properties.
6. Define mutual information.
7. What are cyclic codes? Why they are called subclass of block codes?
8. Define code efficiency.
9. Explain frequency hopping spread spectrum.
10. What is the use of PN sequence in spread spectrum system?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. a) Give the comparison between PCM and ADM modulation techniques.
   b) Discuss the tradeoff between bandwidth and SNR on channel capacity using Shannon's Laws.

(OR)

2. a) State and prove the sampling theorem in time domain. What is Nyquist rate?
   b) Explain the concept of DPCM and mention its advantages.
3. a) Explain the transmitter and receiver of DPSK system. **[7M]**
   b) Discuss Non Coherent FSK Detector. **[3M]**

(OR)

4. a) Explain the transmitter and receiver of BPSK system.
   b) Distinguish Non-Coherent and Coherent detection.

5. Derive expressions for probability of error in the case of BFSK and BPSK modulation schemes.

(OR)

6. a) A transmitter has [x1, x2, x3, x4] and receiver has [y1, y2, y3].

$$P[XY]=\begin{bmatrix} 0.3 & 0.05 & 0 \\ 0 & 0.25 & 0 \\ 0 & 0.15 & 0.05 \\ 0 & 0.05 & 0.15 \end{bmatrix}$$

Calculate all entropies.

b) A DMS 'X' has four symbols x_1, x_2, x_3 and x_4 with $p(x_1)=1/2$, $p(x_2)=1/4$, $p(x_3)=p(x_4)=1/8$. Construct a shanon-fano code for 'X' and find code efficiency?

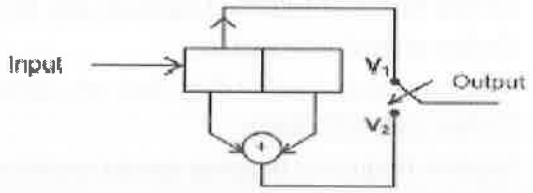
7. The generator Polynomial for a (15,7) cyclic code is $g(x)= 1+x^4+x^6+x^7+x^8$

a) Find the code vector in systematic form for the message $D(x)=x^2+x^3+x^4$

b) Assume that the first bit of the code vector v(x) for $D(x)=x^2+x^3+x^4$ suffer transmission errors. Find the syndromes of V(x).

(OR)

8. Sketch the state diagram, the tree diagram, for convolution encoder of Fig. below. Also, and Trellis diagram.



9. Explain direct sequence spread spectrum with relevant diagrams.

(OR)

10. a) Explain how spread spectrum technique is used in CDMA system.

b) How pseudo noise sequence is generated? Explain it with example?

Code No.: **30418/40418** | **MR13 & MR14**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Digital Signal Processing**

Branch: **ECE**

Time: 3 hours **Max. Marks: 75**

PART-A

I. Answer ALL Questions of the following **5x1M=5M**

1. What is signal processing?
2. What is twiddle factor?
3. Give the magnitude function of Butterworth filter.
4. Define group delay and Phase delay.
5. What is limit cycle oscillations?

II. Answer ALL Questions of the following **10x2M=20M**

1. Find the Z-transform of the sequence $x(n)=(1/3)^{n-1}\,u(n-1)$.
2. What are the classifications of discrete time systems?
3. What is the relation between z-transform and DTFT?
4. What is zero padding? What are its uses?
5. What are the advantages of Digital filters over analog filters?
6. Why IIR filter do not have phase linear.
7. Give the mathematical equation for triangular window? Give its main lobe width.
8. Give the drawback of Fourier series method.
9. What is a multirate system? What are its applications?
10. What is the need for anti-aliasing filter prior to down sampling?

PART-B

Answer ALL Questions of the following **5x10M=50M**

1. a) Calculate the transfer function and impulse response of system described by

$$y(n) = (1/2)y(n-1) + x(n)$$

b) Realize the following system equation in direct form-II

$$y(n) = (1/2)y(n-1) - (1/4)y(n-2) + x(n) + x(n-1)$$

(OR)

2. a) Determine the values of power and energy of the following signals.

i) $x(n)= (1/3)^n u(n)$ ii) $x(n) = e^{2n}u(n)$

b) Determine the impulse response h(n) for the system described by the second order difference equation. $y(n)-0.5y(n-1)+y(n-2)=x(n)+x(n-1)$

3. Calculate the linear convolution of two x(n)={3,-1,0,1,3,2,0,1,2} and h(n)={1 1 1} sequences using over lap add method.

(OR)

4. Find the 8-point DFT of the given sequence x(n)={0,1,2,3,4,5,6,7} using DIF, radix-2 FFT algorithm.

5. Determine the order and poles of low pass Butterworth filter that has α_p= 1dB, α_S= 30dB, Ω_p=200 rad/sec, Ω_s=600 rad/sec.

(OR)

6. Discuss in detail the procedure for designing of IIR filter using bilinear transformation.

7. The desired response of a High pass filter is

$$H(e^{jw}) = e^{-3jw} \qquad \frac{\pi}{4} \le |w| \le \pi$$

$$= 0 \qquad \frac{-\pi}{4} \le w \le \frac{\pi}{4}.$$

Determine $H(e^{jw})$ for N =11 using Fourier series Method.

(OR)

8. Design a high pass filter using hamming window with a cut-off frequency of 1.2 rad/sec and N=9.

9. Explain the effects of coefficient quantization in FIR filters.

(OR)

10. Find the effect of coefficient quantization on pole location which is realized in direct form I. Assume b=4 bits.

$$H(z) = \frac{1}{1 - 0.9z^{-1} + 0.2z^{-2}}$$

Code No.: **30420/40420**

MR13 & MR14

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Electronic Measurements And Instrumentation**

Branch: **ECE**

Time: 3 hours **Max. Marks: 75**

PART-A

I. Answer ALL Questions of the following **5x1M=5M**

1. What is lag in measurement?
2. Write equation for distortion factor (B).
3. List the applications of CRO's.
4. What are the different types of passive transducers?
5. Give the expressions for unknown inductance in Maxwell's bridge.

II. Answer ALL Questions of the following **10x2M=20M**

1. What are observational errors?
2. Draw basic DC Ammeter.
3. What is duty cycle? What is the duty cycle of a square wave generator?
4. Draw the Bridged T-network.
5. Explain Horizontal Deflection System in a CRO.
6. What are the advantages and limitations of sampling oscilloscope?
7. What are the factors to be considered for selection of transducer?
8. What is the advantage of Semiconductor strain gauge?
9. Write about velocity measurement System.
10. Write about analog data acquisition system.

PART-B

Answer ALL Questions of the following **5x10M=50M**

1. a) What is basic meter? Explain the operation of PMMC Movement.

   b) A moving coil instrument has the following data: Number of turns = 100, width of the coil=20mm, depth of coil = 30mm, Flux density in the gap = 0.1wb/m^2, the deflection torque = 30 x 10^{-6} Nm. Calculate the current through the moving coil.

(OR)

2. a) What are the different types of errors while measuring? Explain.

   b) Following values were obtained from measurement of capacitor : 147.2 nF, 147.4 nF, 147.90 nF, 148.1 nF, 147.1 nF, 147.5 nF, 147.6 nF, 147.4 nF,147.6 nF and 147.5 nF. Calculate (i) Arithmetic mean (ii) Average deviation (iii) standard deviation.

3. Draw the block diagram harmonic distortion analyzer and explain its working.

(OR)

4. What are the patterns generated by video pattern generator? Explain them with neat diagrams.

5. Draw the basic block diagram of an oscilloscope and state the function of each block.

(OR)

6. a) What is sampling oscilloscope and explain its operation.

   b) In chop mode of operation, explain working of dual trace oscilloscope.

7. Explain the following (a) Resistance Thermometer (b) Thermo couple

(OR)

8. Explain about any one of the temperature transducers.

9. Draw the Whetstone's bridge and derive the expression for unknown resistance.

(OR)

10. Explain how resistance is measured from Kelvin's bridge and Kelvin's double bridge.

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Microprocessors and Microcontrollers**

Branch: **Common to EEE & ECE**

Time: 3 hours **Max. Marks: 75**

PART-A

I. Answer ALL questions of the following **5 x 1M=5 M**

1. What is stack pointer of 8086?
2. What are the Rotate instructions of 8086.
3. What is meant by the term ISR?
4. What is microcontroller?
5. Draw the bit table of TMOD register

II. Answer ALL questions of the following **10 x 2M=20 M**

1. What is the advantage using interrupts?
2. List the features of 8086 microprocessor?
3. List the addressing modes of 8086.
4. State the need for an instruction set.
5. State the need of serial I/O communication.
6. List the different operating modes of serial port with their band rates.
7. Explain the program counter and data pointer?
8. Explain the program status word in 8051 microcontroller?
9. Write the structure of PCON?
10. What are the serial Interrupts of 8051?

PART-B

Answer ALL questions of the following **5 x 10 M=50 M**

1. Draw and discuss the minimum mode of 8086 system with relevant read and write cycle timing diagrams.

OR

2. Explain the function of following pins in 8086.

   i) NMI ii) $\overline{INTA}$ iii) DEN iv) S_1 & S_0

   v) $\overline{QS_0}$ & $\overline{QS_1}$ vi) IO/$\overline{M}$ vii) HOLD viii) HLDA

3. a) Explain the different types of instruction formats used in 8086.

   b) Explain addressing modes of 8086.

OR

4. a) Write a program to find the factorial of 5.

   b) Write an algorithm for converting ASCII to BCD and draw the flow chart for the same?

5. a) What is meant by interfacing? Explain the brief description of 8255 PPI chip.
   b) Explain the different modes of operation of 8255.

OR

6. a) Draw the block diagram of 8255 and explain each block.
   b) Explain about interfacing of DAC with 8086 using 8255.

7. Write a program (in interrupt mode) to light the LEDs at port 0(for sometime) If the switch connected at INT0 (P3.2) is pressed and to light the LEDs at port2 (for some time)if the switch connected at INT1(P3.3)is pressed. Assume that a crystal oscillator of 22MHz is used.

OR

8. a) Explain the architecture of 8051 Microcontroller with a neat sketch.
   b) Explain bit level logical instructions of 8051.
9. Write a program in which 10 bytes of data stored in RAM locations starting from 45H are transferred serially. At the end of the data transfer, the value of R0 (i.e., 0) is displayed on P1.

OR

10. a) Discuss the interrupt structure of 8051. Mention the priority. Explain how least priority is made as highest priority.
    b) Write 8051 program to generate a square wave of 5KHz frequency at pin P1.3. Assume XTAL=11.0592MHz. use Timer 1.