Code No.: **50422**

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

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 REGULAR & SUPPLEMENTARY

EXAMINATIONS, MAY-2019

Subject: **Digital Signal Processing**

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

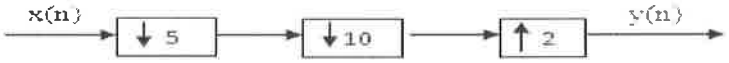
Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Define signal, system and signal processing? What is an LTI system?
2. What is bit reversal order for N=32.
3. Define frequency-warping?
4. What is window function?
5. What is down-sampling?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) Determine the impulse response of the system with difference equation
   $y(n) - \frac{1}{6}y(n-1) - \frac{1}{6}y(n-2) = x(n)$ using Z-Transform
   b) Obtain the direct form-I and form-II structure for the system function
   $H(z) = \frac{1+2z^{-1}+z^{-2}}{1-\frac{3}{4}z^{-1}+\frac{1}{8}z^{-2}}$
2. a) Find the circular convolution of sequences $x_1(n) = \{1,2,3,5\}$ & $x_2(n) = \{1,2,3\}$ for N=6
   b) State and prove circular convolution property of DFT?
3. Design a third order butterworth digital filter using impulse invariant technique (T=1 sec).
4. a) Give the comparison of IIR and FIR digital filters.
   b) Determine the Frequency Response of Linear phase FIR filters for Symmetrical impulse response for N odd?
5. a) Give the spectrum of down-sampled signal and the spectrum of up-sampled signal with neat sketches
   b) For a multirate system shown in figure, develop an expression for the output y(n) as a function of the input x(n).



6. Determine the forced response of the system described by the difference equation
   $y(n) + 2y(n-1)+y(n-2) = x(n) + x(n-1)$ for input $x(n) = (\frac{1}{2})^n u(n)$
7. (a) Given $x(n) = 1$ $0 \le n \le N-2$
   $= 0$ elsewhere
   Find DFT of x(n) for N=4. Draw the magnitude and phase spectrum.
   (b) Find the 4-point IDFT of the sequence x(n) ={12,-4+4j,-4,-4-4j}?
8. Design a digital Chebyshev filter that satisfies the constraints:
   $\frac{1}{\sqrt{2}} \le H(e^{j\omega}) \le 1$ for $0 \le \omega \le 0.2\pi$
   $0 \le H(e^{j\omega}) \le 0.1$ for $0.5\pi \le \omega \le \pi$
   Using Bilinear Transformation with T = 1sec.

Code No.: **50414**

MR15 (2016-17 Batch)

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 REGULAR END EXAMINATIONS, APRIL-2019

Subject: **Micro Processors and Interfacing** (Substitute subject for readmitted Student)

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Define instruction cycle, machine cycle and T-state
2. Explain LDA & STA instructions
3. Distinguish between the instructions SHL and ROR in 8085 microprocessor.
4. List the features of 8255 PPI IC.
5. List the different descriptor types supported by 80386.

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) Write an ALP to find smallest number in set of 8 bite size number in 8085 microprocessor

   b) Write an 8085 ALP to multiply two 8 bit numbers.
2. Write 8085 assembly language program to SORT an array of 10 bytes in Descending order.
3. Explain and draw the block diagram of 8086 CPU and explain the function of each block.
4. What is interrupt vector table of 8086? Explain its structure.
5. a) List four major architecture advancement in 80486 over 80386

   b) Explain the cache management unit of 80486.
6. Explain the internal architecture of 8085 microprocessor
7. Explain the three modes of operations for 8255 using relevant diagrams?
8. Develop 8086 assembly language program to perform the following
   a) To move a string of words from offset 1000h to offset 6000h. The Length of the string is 0Ch.
   b) To add an array of bytes. The array contains 50bytes.

Code No.: **50424**

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

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 REGULAR & SUPPLEMENTARY EXAMINATIONS,

MAY-2019

Subject: **Digital Communications**

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Which parameter is called figure of merit of a digital communication system and why?
2. Compare pass band and base band digital modulation systems.
3. Write the Hartley Shanon-Law.
4. Discuss the concept of convolutional codes.
5. List the applications of SS system.

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) Write short notes on Principle of DPCM
   b) Write short notes on Quantization noise
2. a) What is meant by coherent ASK and coherent PSK? What is the major advantage of the coherent PSK over coherent ASK?
   b) Explain the spectrum of BFSK signal and calculate its transmission band width requirement.
3. a) State and prove the nyquist criterion for distortion less base band data transmission system [6M]
   b) What are the advantages and disadvantages of Huffman coding [4M]
4. a) The generator polynomial of a (7,4) cyclic code is $g(x) = 1+x+ x^3$.Find the code words for the message 1010 ,1011 in systematic and nonsystematic forms. [6M]
   b) What is the use of syndrome? Draw the (n-k) syndrome calculation circuit for (n,k) cyclic code? [4M]
5. a) Describe fine synchronization in direct sequence spread spectrum modulation?
   b) Explain how tracking is performed in the case of DSSS system.
6. a) With a neat sketch describe DPCM concept
   b) Explain the advantages of PCM system
7. Compare all the binary digital modulation schemes in detail.-
8. a) Draw the block diagram of baseband signal receiver and explain.
   b) Derive an expression for the probability of error of integrate and dump filter

Code No.: **50423**

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

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 REGULAR & SUPPLEMENTARY EXAMINATIONS,

MAY-2019

Subject: **Microcontrollers And Embedded Systems**

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Explain the interrupts in 8051?
2. Differentiate between calls and subroutines.
3. Draw the interfacing diagram of DAC0808 with 8051
4. Draw block diagram of embedded system.
5. What is ASIC ? Explain the role of ASIC in embedded system.

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. Explain the operation of Timer/Counter Control logic with a neat circuit diagram.
2. What is meant by Jump and Call Program Range? Describe in detail.
3. (a) Explain the block diagram & operation of programmable Keyboard/Display interface?
   (b) Write a assembly language program to display the word "Microcontroller'?
4. (a) List & explain characteristics of an Embedded System?
   (b) Define Embedded Systems & write the applications?
5. (a) List & explain the components of a typical embedded system?
   (b)Explain the Brown-out protection circuit?
6. Draw and explain PORT 0 and PORT 1 structure of 8051.
7. Explain procedure to generate hex file from ASM file.
8. Assume that the word “Honest is the Best Policy” is stored at ROM memory location 0400H. Write an assembly language program to display the given message from right to left using 16X2 LCD display

Code No.: **50428**

MR15 (2015-16 Batch Supply)

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-2019

Subject: **Embedded Real Time Operating Systems**

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Define Linux kernel.
2. Define Semaphore and give an example?
3. Define pipes and its states?
4. Write a short note on interrupt handling?
5. Write about basic features of Vx works?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) With neat structure explain architecture of UNIX.
   b) How do you create, remove, open, close, read, write and IO control a device using RTOS functions? Explain with example.
2. a) Draw view of RTOS and other components found in embedded system.
   b) With neat diagram explain common components in a RTOS kernel.
3. a) Explain Inter process communication?
   b) List the best strategies for synchronization between the tasks & ISRs.
4. a) Explain the typical task structure.
   b) With example explain concept of task management.
5. Explain the other building blocks a) command shell b) target debug agent
6. Briefly explain about objects, services and I/O.
7. a) Describe Real time clock and its application.
   b) Draw and explain the steps in servicing timer interrupt.
8. a) Write a short note on embedded linux?
   b) Distinguish between the features of MICRO-OS-II and Vx Works RTOS.

Code No.: **50427**

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

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 REGULAR & SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: **Wireless Comunications and Networks**

Branch: **ECE**

Time: 3 hours **Max. Marks: 60**

PART – A

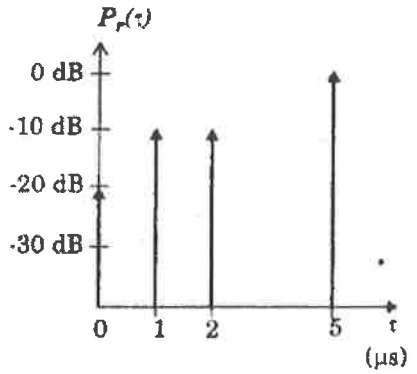
Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. What are the advantages of 3G mobile networks?
2. Define the scattering
3. Write two functions of IEEE 802.11 medium access control layer.
4. What are the typical data rates offered in 2G and 3G cellular networks?
5. Define Doppler shift. Write the expression for Doppler shift?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) Compare paging systems and cellular telephone systems.
   b) Differentiate the features of 2G and 3G wireless networks
2. a) Explain path loss equation for a free space propagation model.
   b) What you mean by path loss model? Explain large scale path loss,
3. a) Explain the direct RF pulse system in the small scale multi path measurement.
   b) Explain Two-Ray Rayleigh fading model.
4. a) Write about logical link control of 802.15.
   b) Explain IEEE 802.11 services
5. Explain different methods for communication between mobile and fixed terminals.
6. a) Explain Bluetooth technology in detail.
   b) Illustrate personal area networks (PANs) with necessary diagrams.
7. a) Give an outline on Indoor propagation models.
   b) Explain Ericsson multiple breakpoint model with a neat sketch.
8. a) Define coherence bandwidth of a multipath channel.
   b) Solve for the mean excess delay, rms delay spread and the maximum excess delay (10 dB) for the multipath profile given in the figure below. Identify the 50% coherence bandwidth of the channel.



Code No.: 50H12

MR15 (2016-17 Batch Regular & 2015-16 Batch Supply)

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 REGULAR & SUPPLEMENTARY EXAMINATIONS, APRIL-2019

Subject: **Engineering Economics and Accountancy**

Branch: **Common to EEE, ECE & CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer **ALL** questions of the following **5x2Marks=10 Marks**

1. Discuss the scope of Managerial economics?
2. What are the key terms used in break even analysis.
3. What is Commodity Bundling?
4. Write about Nominal partner.
5. What are the 5 major categories of ratios?

PART-B

Answer any **FIVE** Questions of the following **5x10 Marks= 50Marks**

1. a) What are the characteristics of managerial economics? [3M]
   b) Factors influencing demand [3M]
   c) Identify formula for different types of price elasticity(Unity, >1, <1,0 and Infinity) [4M]
2. Briefly explain the different types of cost concepts.
3. Discuss about price output determination under Monopoly?
4. The cost of the plant is Rs.5,00,000, it has estimated life of 5years after which it would be disposed off (salvage value nil) profit before depreciation, interest and taxes (PBIT) is estimated to be Rs.1,75,000 p.a, tax rate 30%, find out the yearly cash flow from the plant and NPV, @ 12% discounting rate
5. A firm sold goods worth Rs. 1, 00,000 and its gross profit is 20% of sales value. The inventory at the beginning of the year was Rs.32, 000 and at the end of the year was Rs14,000. Compute inventory turnover ratio and also the inventory holding period?
6. Critically examine the law of variable proportions?
7. Define production? Explain the factors of production.
8. Explain the method of cost plus pricing. What are its limitations?