Code No.: **50428**

MR15-2015-16 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, MAY-2018

Subject: **Embedded Real Time Operating Systems**

Branch: **ECE**

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

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Describe fork and vfork system calls for Linux OS.
2. Explain Message Queue states?
3. Differentiate between port Mapped vs. Memory-Mapped I/O system.
4. Write a short note on Precise and imprecise exceptions?
5. Describe four features of Android RTOS.

PART-B

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

1. a) With the use of fork system call write c program to create child task. [5M]
   b) Describe file related shell commands for linux OS. [5M]
2. a) Define Message queue and write for storage and operation of it. [5M]
   b) Describe multi tasking using context switch. [5M]
3. a) Explain the different states of pipe with neat flow chart. [5M]
   b) Describe use of signals [5M]
4. a) What is a timer? How does a counter perform timer functions and time capture functions? [5M]
   b) Explain the role of Real Time Clock in Embedded in System? [5M]
5. a) Draw and explain task state diagram for VxWorks RTOS [5M]
   b) What are the advantages of embedded LINUX? [5M]
6. a) What is RTOS? Give one practical example where RTOS is used? [5M]
   b) Write short notes on Round robin Scheduling [5M]
7. a) How Remote Procedure Call Works [5M]
   a) Explain control block of an Event register? [5M]
8. **Answer any TWO Questions of the following** **2x5 Marks= 10Marks**

   Write short notes on : a) Reliability
   b) Mail box
   c) Soft timers

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

III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018

Subject: **Wireless Communications and Networks**

Branch: **ECE**

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

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Draw the diagram of Cordless telephone systems.
2. Differentiate large scale fading and small scale fading
3. Write the comparisons between fast and slow fading.
4. What is Wi-Fi protected access?
5. Write the comparisons on BLUTOOTH, Wi-Fi and WiMAX

PART-B

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

1. a) With neat diagram explain the operation of paging system. [5M]
   b) Compare and contrast 2G and 3G standards. [5M]
2. Derive the expression for electric field, path loss and received power for a Two Ray model? [10M]
3. a) Derive the impulse response model of a multipath channel. [5M]
   b) Explain the fading effects due to Doppler spread. [5M]
4. a) With neat diagram explain the IEEE 802.11 architecture. [5M]
   b) What are the protocol layers used in Bluetooth architecture. [5M]
5. a) Explain the system description of data-oriented CDPD network. [5M]
   b) Explain the differences between the medium access control mechanisms of the HIPERLAN2 and IEEE802.11. [5M]
6. a) Compare different applications with wired and wireless telephone networks [5M]
   b) With neat diagram explain the free space propagation model. [5M]
7. a) Describe the factors are influencing small scale fading [5M]
   b) Explain the overview of 802.15 standard. [5M]
8. **Answer any TWO Questions of the following** **2x5 Marks= 10Marks**
   a) List the five types of logical channels in Bluetooth.
   b) Write short notes on Large scale fading Vs small scale fading.
   c) Write short notes on Effects of reflections in dielectric.

Code No.: **50424**

MR15-2015-16 Batch

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III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018

Subject: **Digital Communication**

Branch: **ECE**

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

PART-A

Answer ALL Questions of the following **5x2M=10M**

1. Mention the merits of DPCM.
2. Mention the advantages and drawbacks of M-arydigital modulation techniques.
3. Define entropy and find the maximum value of entropy for a discrete source which generates 'M' number of messages?
4. Illustrate how standard array is used in decoding of block codes?
5. What are the advantages of spread spectrum communication?

PART-B

Answer any FIVE Questions of the following **5x10M=50M**

1. Draw a neat block diagram of a typical digital communication system and explain the function of key processing blocks. [10M]
2. Explain the generation and detection of a coherent binary PSK signal and plot the power spectral density of PSK signal [10M]
3. What is Huffman coding and write its algorithm. Calculate the Huffman coding for the set of symbols shown in Table. [10M]

Symbol and their probabilities

Symbol	**A**	**B**	**C**	**D**
Probability	**0.4**	**0.3**	**0.2**	**0.1**

4. The generator polynomial of a (7,4) cyclic code is $1+x+x^3$. Develop encoder and syndrome calculator for this code. [10M]
5. a) Explain the Direct Sequence Spread Spectrum with neat diagram. (6M)
   b) How Pseudo noise is generated? Explain with example. (4M)
6. a) Write short notes on Quantization [5M]
   b) Discuss FSK detection using PLL? [5M]
7. a) Write short notes on: a) Optimum receiver [5M]
   b) Code tree diagram [5M]
8. **Write short notes on TWO of the following:** **2 x 5M= 10M**
   a) Quantization noise b) BPSK c) Signal space representation

Code No.: **50423**

MR15-2015-16 Batch

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III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018

Subject: **Micro Controllers and Embedded Systems**

Branch: **ECE**

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

PART-A

Answer ALL Questions of the following **5x2M=10M**

1. Indicate when the TF1 flag is raised for each of the following
   i) MODE0 ii) MODE1 iii) MODE2
2. Explain the instruction MOVX A,@DPTR
3. Why interfacing is needed?
4. Define an embedded system and Write the typical characteristics of an embedded system.
5. Explain synchronous and Asynchronous circuits.

PART-B

Answer any **FIVE** Questions of the following **5x10M=50M**

1. a) Explain the Functions of the following pins of 8051 [5M]
   i) ALE ii) $\overline{WR}$ iii) $\overline{EA}$ iv) $\overline{RD}$ v) TXD vi) RXD
   b) Write an assembly language program to transmit message MREC from microcontroller to PC using baud rate 9600, assume crystal frequency is 11.0592 MHz. [5M]
2. Explain the signed and unsigned addition instructions in detail. [10M]
3. A robotic arm consists of 2 stepper motors M1 and M2 at two joints. Each motor has step angle of 2^{o}. Write an ALP to rotate M1 by 64^{o} clockwise and M2 by 24^{o} anti-clockwise. Use 4 step sequence. Assume M1 is connected to port1 and M2 is connected to port2. Draw the relevant diagram. [10M]
4. a) Explain different classifications of embedded systems with examples. [5M]
   b) Differentiate between general purpose computers & embedded systems [5M]
5. Explain I2C bus interfacing with a neat diagram. [10M]
6. Write short notes on: a) Bit level operations b) Interrupt Enable. [5M +5M]
7. a) Design a circuit to interface ADC 0848 with 8051. Explain various steps for data conversion.
   (b) Define Embedded Systems & write the applications? [5M +5M]
8. **Answer any TWO of the following** **2x5M=10M**
   a) Flash memory b) Push and POP instructions c) Program storage memory

Code No.: **50422** | **MR15-2015-16 Batch**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018

Subject: **Digital Signal Processing**

Branch: **ECE**

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

PART-A

Answer ALL questions of the following **5 x 2 M=10 M**

1. Determine if the system described by the following input– output equation is linear time invariant or not $y(n) = x(n^3)$
2. What is Bit reversal in DFT
3. Define filter? Give its classification.
4. Explain about Gibb's phenomenon
5. A lowpass filter is employed after up-sampling in interpolator, why?

PART-B

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

1. a) Find the response of the system with difference equation [5M]
   $y(n) + 2y(n-1) + y(n-2) = x(n) + x(n-1)$ for the input $x(n) = (1/2)^n u(n)$ with the initial condition $y(-1)=y(-2)=1$.
   b) Determine the pole-zero plot for the system described by the difference equation
   $$y(n) - \frac{3}{4}y(n-1) + \frac{1}{8}y(n-2) = x(n) - x(n-1)$$ [5M]
2. a) Discuss the computational efficiency of radix-2 DIT FFT Algorithm [5M]
   b) Calculate the number of complex additions and multiplications for 512 – point radix -2 FFT and DFT? [5M]
3. Design digital high pass Butterworth filter with the specification α_p =1dBripple in the passband 40Hz, α_s =15dBripple in the stopband 20Hz and sampling frequency 100Hz using Bilinear transformation. [10M]
4. a) Write about Design of FIR filter using window techniques. [5M]
   b) What are the desirable characteristics of a window. [5M]
5. a) Give the applicationsMultirate Signal Processing [5M]
   b) Discuss the sample rate conversion by rational factor I/D and explain the procedure for selecting the filter response in the system. [5M]
6. a) Write about the classification of signals and systems [5M]
   b) Calculate the DFT of the sequence $x(n) = \{1, 1, -2, -2\}$. [5M]
7. a) Explain the design procedure of Digital IIR filter. [5M]
   b) Derive the frequency response of an FIR filter for impulse response is symmetric and length of the filter N even. [5M]
8. **Write short notes on any TWO of the following** **2*5 =10M**

   a) Linear phase FIR filters b) Parseval's theory c) Rectangular and hearing window.

Code No.: **50425**

MR15-2015-16 Batch

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III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018

Subject: **Cellular and Mobile Communications**

Branch: **ECE**

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

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Discuss the uniqueness of Mobile radio environment.
2. Define Co-Channel Interference? How it is measured at the mobile unit and cell site.
3. Explain the effects of human made structures.
4. Define channel borrowing.
5. Define Handoff. What are the different types of handoffs?

PART-B

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

1. Why cell splitting in cellular systems? Explain different types of cell splitting techniques. [10M]
2. Explain the designing of the directional antenna under the practical case conditions for

   K=4,K=7 and K=12 with all suitable values and explaining each of them. [10M]
3. Obtain the general formula for mobile propagation over water and flat open area. [10M]
4. What is meant by channel assignment? Discuss various channel assignment techniques. [10M]
5. What are the steps involved in handoff process? Explain. [10M]
6. a) Briefly explain the co channel interference reduction factor. [5M]

   b) Explain different methods to reduce the co-channel interferences. [5M
7. a) Why we use 1-mi intercept? Explain. [5M]

   b) Write short notes on Channel sharing. [5M]
8. **Answer any TWO Questions of the following** **2X5M=10M**

   Write short notes on:
   a) Trunking efficiency [5M]
   b) Cross talk. [5M]
   c) Path loss. [5M]

Code No.: 50H12 | MR15-2015-16 Batch

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III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018

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 **5 x 2 M=10 M**

1. Define the nature of Managerial Economics.
2. What are the key terms used in break even analysis.
3. Differentiate features Perfect and Monopoly completion markets.
4. Identify any three differences between soletradership and partnership firms
5. Write journal entry for purchase of a Machinery from M/s, Girloskar Oil Machines Ltd. worth Rs.50.00 Lakhs and made advance payment in form of cash Rs.10000.00 and a bank cheque from The Karnataka Mercantile Bank Ltd. Rs. 4.90 Lakhs and remaining balance is on credit against erection of machinery.

PART-B

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

1. a) List different types of demand and draw graph for income demand? [3M]
   b) Determine Type of Elasticity if P1=Rs.100/-, P2=110/-, Q1=1000 Units, and Q2=950 Units.[3M]
   c) Qualitative Methods of demand forecasting. [4M]

2. a) Differentiate Isoquants and Isocost curves?
   b) Depict graph for short run cost output relations covering AVC, AFC, ATC& MC curves and define fixed and variable costs
   c) Determine BEP volume and sales volume that is required to get a target profit of Rs. 20.00 Lakhs, if Fixed Cost is Rs.10.00 Lakhs, Per Unit is Rs.50/- and Variable Cost Per Unit is Rs.40/-.

3. a) Compare local, regional, national and international markets [3M+3M+4M]
   b) Compare features of perfect and monopolistic market structures.
   c) Differentiate Bundle Pricing, Block Pricing, Two Part Pricing and loss leader pricing methods.

4. a) Differentiate Private Limited Companies to that of Public Limited Companies in their features. [3M]
   b) Factors influencing working capital requirements [3M]
   c) Determine Pay Back Period if Initial Cost of Investment is Rs.2.00 Lakhs, Life of project is 5 Years, No Salvage Value, Cash flows are Rs.25000/-, Rs.75000/-, Rs..100,000/-, Rs.80000/- and Rs.50000/-. [4M]

5. From the following figures prepare Trading and Profit and Loss Account for the year ended 31st March, 2014 and a Balance Sheet as on that date:

Capital	86,800	Bad debts	700
Drawing	15,000	Bad debts provision	2,100
Investments	14,000	Sundry debtors	40,400
Cash	8,000	Sundry creditors	25,700
Rent and Insurance	3,000	Furniture	8,000
Opening Stock	36,600	Plant and machinery	50,000
Purchases	1,86,000	Salaries	11,000
Sales	3,05,000	Advertisement	4,400
Sales return	5,000	Goodwill	6,000
Wages	22,000	Freight	6,300
Carriage	4,200	Commission (Cr.)	1,000

Adjustments :

1. Stock on 31st march 2014 was Rs. 31,500
2. Salary and wages for March 2010 were unpaid.
3. Rent outstanding amounted to Rs. 600 and insurance unexpired amounted to Rs. 400.
4. Commission amounting to Rs. 200 has been received in advance.
5. Depreciate furniture and plant and machinery by 10% [10M]

6. a) What are the objectives, importance, uses and limitations of demand forecasting? [5M]

   b) What are Assumptions and limitations of Break Even Analysis? [5M]

7. a) Write in brief about different pricing methods? [5M]

   b) Enumerate the merits of partnership firm. [5M]

8. **Answer Any TWO questions of the following** **2 x 5 M=10 M**

   Write short notes on: a) Ratio Analysis b) Break Even Analysis c) Monopolistic Competition