Code No.: **50415**

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 I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019

Subject: **Antennas and Wave Propagation**

Branch: ECE

Time: 3 hours

Max. Marks: 60

PART – A

Answer **ALL** questions of the following

5x2Marks=10 Marks

1. What are the different types of aperture

2. What is radiation resistance of half wave dipole antenna?

3. Name the parasitic elements used in Yagi-Uda array. Explain their significance in array.

4. State characteristics of Microstrip Antennas.

5. What are the parameters that determines classification of wave propagation ?

PART-B

Answer any **FIVE** Questions of the following

5x10 Marks= 50Marks

1. a) Explain Friss transmission equation.

    b) Explain about i) Radiation Intensity ii) Gain iii) Antenna Efficiency

2. a) Explain the isotropic, directional and omnidirectional patterns

    b) What is meant by the effective area of an antenna? How is it related to the gain?

3. a) Design a lossless resonant circular loop operating at 10MHz so that its single turn radiation resistance is 0.73 ohms

    b) What is the radiation resistance of an infinitesimally small dipole whose overall length is $L = \lambda/50$ (3)

4. a) Derive an expression for the radiation resistance of a monopole antenna

    b) Write short note on loop antenna.

5. Write short notes on the following

    (a) Log-periodic antenna (b) Path loss   (c) Uniform end fire Array

6. Show that the first secondary maximum is about 13.5 dB below the principal maximum in the case of an 'n' element uniform linear array.

7. a).Discuss the features , advantages and draw backs of microstrip antenna   **(6)**

    b) Give the basic principle of working of parabolic reflector antennas?   **(4)**

8. a) Explain space wave propagation and sky wave propagation?

    b)Write short notes on any two of the following (i)MUF (ii)Skip distance (iii)Virtual height

28

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019

Subject: **Digital Design Using Verilog HDL**

Branch: **ECE**

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

PART – A

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

1. Define concatenation operator

2. Explain "wire" and "reg" in verilog HDL?

3. Draw a simulation flowchart?

4. What are the differences in tasks and functions

5. Explain capacitive model?

PART-B

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

1. a) Explain port declaration with an example using verilog code?

   b) Explain importance of verilog HDL?

2. a) Write the verilog code for full adder.

   b) Write test bench for full adder.

3. a) Design a module and test bench for half adder?

   b) Design full adder using half adder?

4. a) Write verilog HDL program for 2x4 decoder.

   b) Write test bench for 2x4 decoder

5. a) Write the differences between begin-end and fork blocks with examples?

   b) Write verilog program for clock generation with time period of 20 ns.

6. a) Write verilog program for ALU design.

   b) Write test bench for ALU.

7. a) Design verilog module for CMOS inverter?

   b) Explain NMOS, PMOS elements in verilog HDL?

8. a) Explain basic memory components in verilog HDL?

   b) Explain how to define test data for functional verification?

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019

Subject: **Micro Processors and Interfacing**

Branch: **ECE**

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

PART – A

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

1. Mention various flags provided in 8085 microprocessor.

2. List out the interrupt available in 8085?

3. Differentiate between procedures and macros.

4. Differentiate between half duplex and full duplex transmission?

5. Enlist the salient features of 80386.

PART-B

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

1. a) Discuss about the various addressing modes available in 8085 with examples.

   b) Describe the operation of the stack with a suitable an example.

2. Explain the following 8085 instructions with example.

   a) IN   b) OUT   c) JC   d) MOV   e) PUSH

3. Explain the following instructions

   (i) CWD (ii) IMUL   (iii) RCL   (iv) LOOP (v) JC

4. a) Write an ALP in 8085 to add two 8 bit BCD number in 8085.

   b) Write an ALP two subtract two 8 bit number without using SUB instruction in 8085.

5. a) Write an ALP to find largest number in set of 8 bite size number in 8086 microprocessor

   b) Write an ALP to find given number is positive or negative in 8086 microprocessor.

6. a) Calculate the physical Address if base address is 3000H and offset address is 1234H b

   b) If register AX = 1234H , BX = 5789H , after executing the instruction ADD AX,BX, state the flag contents (OF,SF,ZF,AF,PF,CF).

7. a) Difference between synchronous and asynchronous.

   b) Explain (i) Simplex   (ii) Half duplex   (iii) Full duplex

8. Draw and discuss the register set of 80386 and explain a typical function of each of the register in brief.

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019

Subject: **Electronic Measurements and Instrumentation**

Branch: ECE

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

PART – A

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

1. Define any two Dynamic Characteristics.

2. What is meant by the heterodyne wave analyzer?

3. Define the term Graticules.

4. What are different methods of pressure measurement?

5. What are the differences between DC and AC bridges

PART-B

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

1. a) What properties should a measuring system possess? Explain.

    b) What is meant by a random error? Explain with an example.

2. Explain about DC Ammeter and Multirange Dc Ammeter with a neat diagram.

3. a) What is a wave analyzer? Explain the operation of frequency selective wave analyzer.

    b) What is meant by total harmonic distortion? Explain with necessary expressions.

4. a)What are power analyzers? Explain

    b) What are the applications of power analyzers.

5. a) Explain about

    i)   Triggered Mode

    ii)   Sweep Mode of a CRO.

    b) Explain how to calculate Amplitude and Time period for a sine wave using a CRO.

6. a) Explain about the high frequency considerations in CRO.

    b) What are X-Y oscillographic recorders.

7. a). What are the objectives of data acquisition system?

    b) Explain the generalized block schematic of a Digital Data Acquisition system.

8. Draw Wien's Bridge circuit and derive the equation for frequency of circuit. A wien's bridge circuit consists of following R1=4.7KΩ, R2=20KΩ, R3=10KΩ, C1= 5nF, C3= 10 nF. Determine frequency of circuit.

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019
Subject: **Internet of Things**

Branch: **ECE**

Time: 3 hours | Max. Marks: 60

PART – A

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

1. What is the role of communication modules in IoT

2. Write any two features of microcontroller

3. Define Resource Management in IoT

4. Define ontology with respect to the IoT

5. Write about physical mashup's.

PART-B

Answer any **FIVE** Questions of the following   **5x10Marks=50Marks**

1. Write in detail about the various communication technologies in IoT

2. a) Elaborate the security and privacy concerns in the internet

   b) Write briefly about IoT Components

3. Write with an example ardino micro controller platform

4. List out some sensors? Write in detail IOT reading from sensor.

5. Explain in detail clustering principles of an IoT

6. Illustrate Enabling the agility and autonomy by the IoT

7. a) What is device Integration?

   b) Explain the role of Semantic web services in IOT.

8. Illustrate various web enabling constraint devices.

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: **Technical Communication and Presentation Skills**

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

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

PART – A

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

1. Explain the term Formal Vocabulary with examples.
2. Write any four mechanics of technical writing?
3. Write a short note on the art of persuasion.
4. List out any four barriers in an effective presentation.
5. What is reading for specific purposes? What the effective reader does in this process?

PART-B

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

1. (a) Match the following words on the left with the definitions on the right.   3 X 1M = 3M

Words	Definition, meaning
1. concept	give or supply
2. yield	an abstract or general idea inferred from specific instances
3. substantial	having a material or factual existence

(b) Choose the word that is <u>different</u> from the others in meaning.   3 X 1M = 3M

1. reduce	demolish	diminish	decrease	Abate
2. permission	commission	consent	approval	clearance
3. explain	clarify	illustrate	elucidate	eradicate

c) Write phonetic transcription for the following words   2 X 1M = 2M

     1. Engineering   2. College

d) Explain effective ways of improving English pronunciation?   2M

2. (a) Match the following words on the left with the definitions on the right.   3 X 1M = 3M

Words	Definition, meaning
1. render	reason from the general to the particular
2. deduce	the elementary stage of any subject
3. rudiment	give an interpretation of

(b) Choose the word that is <u>different</u> from the others in meaning.   3 X 1M = 3M

1. remove	withdraw	extract	dislodge	devout
2. lift	absorb	elevate	raise	hoist
3. jeopardy	danger	peril	solace	threat

(c) Write phonetic transcription for the following words   2 X 1M = 2M

      1. Technology 2. English

(d) Explain three levels of formality in using vocabulary?

3. Draft a memorandum to the office staff emphasizing the need of observing punctuality and adhering to lunch hours.

4. a) Explain in detail the structures and characteristics of good writing.

   b) As Manager, Welfare Department, write a memo informing all workers of a new medical - cum health welfare which has special benefits if half the number of employees join.

5. The renowned industrialist Mukesh Ambani is visiting Hyderabad next week. He has agreed to pay two-hour visit to your college. The principal of your college has asked you to carry out a survey amongst students and then submit a report to him. He wants suggestions on:

   - How the two hour program can be organized
   - What activities can be carried out during these two hours
   - Who would assist him in this program
   - How these two hours can be productively spent
   - A present to give to the guest to say thank you for coming to visit your college.

6. The renowned businessman *Anand Mahindra* is visiting Hyderabad next week. He has agreed to pay two-hour visit to your college. The principal of your college has asked you to carry out a survey amongst students and then submit a report to him. He wants suggestions on:

   - How the two hour program can be organized
   - What activities can be carried out during these two hours
   - Who would assist him in this program
   - How these two hours can be productively spent
   - A present to give to the guest to say thank you for coming to visit your college.

7. Discuss important elements of effective presentation with suitable examples?

8. What are the different types of reading? Mention advantages and disadvantages.

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019

Subject: **Computer Networks**

Branch: **Common to ECE & CSE**

Time: 3 hours   Max. Marks: 60

PART – A

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

1. Define the terms data and information.

2. What are the three types of redundancy checks used in data communications?

3. What is a hostid and netid?

4. What are the directions of data flow available networks.

5. What are the two parts of addressing system in SMTP?

PART-B

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

1. a) Explain the three major components of a Telephone network with examples?

   b) Write a short note on TCP/IP Model

2. a) Briefly discuss the differences between synchronous TDM and statistical TDM   [7]

   b) List out the differences between OSI model and TCP/IP Model?   [3]

3. a) Write the various multiple access protocols? What is the purpose of CSMA/CD? And Explain it.

   b) Write a short note on Point to Point Protocol

4. a) What is framing? Explain bit stuffing with an example.

   b) Briefly discuss how flow and error control are handled in data link layer?

5. Discus Briefly about distance vector routing algorithm along with advantages and disadvantages?

6. a) Explain 802.3 frame structure with a neat diagram.

   b) Explain link state routing and discuss its advantages over distance vector routing.

7. a) Draw UDP header and explain each field.   [4]

   b) Explain the techniques to improve QoS in switched networks.   [6]

8. a) Briefly discuss about user agent in email?

   b) Explain the final delivery of email to the end user using POP3

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY - 2019

Subject: **Linear and Digital IC Applications**

Branch: **Common to EEE & ECE**

Time: 3 hours

Max. Marks: 60

PART – A

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

1. The two input bias currents of an Op-amp are 22μA and 26 μA. What is the value of input offset current and Input bias current?

2. What is an instrumentation amplifier? List the important features of instrumentation amplifier.

3. Compare and Contrast Passive and Active Filters.

4. Which is the fastest ADC and why?

5. Distinguish between Synchronous and Asynchronous Counters.

PART-B

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

1. Explain how the following op-amp parameters are measured.10M

   (i)Input bias current. (ii) Input offset current. (iii)Input offset voltage. (iv)Total output offset voltage

2. a) Explain the compensation technique for input offset voltage

   b) Explain the compensation technique for input offset current

3. Draw a neat circuit diagram of an integrator circuit. Explain its functioning with the Input-Output wave forms. Derive the output voltage V0 of an integrator circuit. 10M

4. a) Explain about differentiator.   [4M]

   b) Draw Inverting and non-inverting Op-Amp Comparators and then explain their operations.[6M]

5. a) Explain the operation of an All-pass filter. Explain why it is known as phase shift circuit.

   b) Voltage controlled oscillator(VCO)

6. Design a second order low pass filter at a high cut off frequency of 1 KHz. Derive transfer function of the above filter.

7. a) Draw the circuit diagram of a 4-bit inverted R-2R ladder DAC.

   b) How many bits are required to design D/A converter that can have resolution 5m volts. The ladder has 8v fullscale.

8. a) Design a CMOS transistor circuit for the logical function $f = ((A + B')(C + D'))'$.

   b) Implement the full subtractor circuit using IC74138 and basic gates and explain its operation.