



MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(Autonomous Institution – UGC, Govt. of India)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - - ISO 9001:2015 Certified)

Accredited by NBA & NAAC – 'A' Grade

National Ranking by NIRF - Rank band (151-300), MHRD, Govt. of India

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, NOVEMBER-2023

COMPUER FORENSICS (COMMON TO ECE,EEE)

[Time: 3 Hours]

[Max. Marks: 70]

PART – A

(5 x 2 = 10M)

- Note:** 1. This Part consists of 8 QUESTIONS.
2. Answer any 5 questions. Each question carries 2 Marks .

1.	A	List the types of cyber crime	2M	BTL2
	B	Mention the activities in Initial Response	2M	BTL2
	C	What is forensics duplication?	2M	BTL1
	D	Write the different data collection methods	2M	BTL1
	E	What are the different acquisition tools in forensics?	2M	BTL1
	F	Define network forensics	2M	BTL1
	G	Outline the role of client and server roles in e-mail	2M	BTL2
	H	Mention the Windows Registry Commands	2M	BTL2

PART – B

(5 x 12 = 60M)

- Note:** 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	Distinguish between worms and viruses in the context of cyber threats.	6M	BTL3
2.B	Explain the concept of cybercrime and its various types. Provide examples of each type and discuss their implications for individuals and society.	6M	BTL2

(OR)

3.A	Discuss the key processes and techniques involved in digital forensics and their role in gathering and preserving digital evidence.	6M	BTL4
3.B	Explain the incident response methodology and its various steps, with a focus on the initial response phase.	6M	BTL3

SECTION - II

4.A	Detail the process of collecting volatile data from a Windows system During the initial response phase of a cyber incident and provide examples.	6M	BTL3
4.B	Discuss the role of forensic duplication in the investigation of cybercrimes.	6M	BTL4

(OR)

5.A	Explain the significance of the initial response phase in incident handling and cybersecurity. Discuss the key activities involved in this phase and how they help in mitigating the impact of security incidents.	6M	BTL3
5.B	Outline the specific requirements and considerations for selecting and using forensic duplication tools in a cybersecurity investigation.	6M	BTL4

SECTION - III

6.A	Describe common data-hiding techniques that individuals may use to conceal evidence on a computer.	6M	BTL4
6.B	Discuss the use of network tools in network forensics investigations. Provide examples of commonly used network tools and their roles in the data collection and analysis process.	6M	BTL3

(OR)

7.A	Explain the process of determining what data to collect and analyze in a computer forensic investigation.	6M	BTL3
7.B	Examine the HoneyNet Project and its relevance in network forensics. Describe the objectives and methods of the HoneyNet Project and discuss how it contributes to understanding and mitigating cybersecurity threats.	6M	BTL3

SECTION – IV

8.A	Explain the distinction between computer forensic software tools and computer forensic hardware tools. Provide examples of each and discuss their respective roles in digital investigations.	6M	BTL2
8.B	Explain the concept of email servers and their importance in email investigations.	6M	BTL2

(OR)

9.A	Discuss the use of specialized email forensics tools in digital investigations. Provide examples of such tools.	6M	BTL3
9.B	Detail the procedures for acquiring data from cell phones and mobile devices in a forensic investigation.	6M	BTL2

SECTION – V

10.A	Discuss the key differences between common file systems, such as FAT, NTFS, and exFAT, and their significance in forensic analysis.	6M	BTL3
10.B	Explain the use of virtual machines in digital forensics. Discuss how virtualization technology is applied to create forensic work environments, isolate digital evidence, and safely analyze potentially malicious files.	6M	BTL2

(OR)

11.A	Examine Microsoft startup tasks and their relevance in forensic investigations.	6M	BTL2
11.B	Explain the role of the Windows Registry in digital forensics. Discuss the structure and purpose of the Registry, and how it can be valuable in forensic analysis for gathering information about system configuration and user activity.	6M	BTL3



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B.TECH IV YEAR I SEMESTER END EXAMINATIONS, NOVEMBER-2023

ELECTRICAL MEASUREMENTS & INSTRUMENTATION

(ELECTRICAL AND ELECTRONICS ENGINEERING)

[Time: 3 Hours]

[Max. Marks: 70]

PART – A

(5 x 2 = 10M)

- Note:**
1. This Part consists of 8 QUESTIONS
 2. Answer any 5 questions. Each question carries 2 Marks.

1	A	What do you infer from the terms accuracy & precision?	2M	BTL2
	B	List out three torques applicable to measuring instruments	2M	BTL1
	C	Illustrate phase angle error	2M	BTL2
	D	Outline the use of phantom loading in energy meter testing	2M	BTL2
	E	Recall the meaning of the term maximum demand, what is its impact to the consumer when maximum demand is increased from actual demand.	2M	BTL1
	F	Make use of Wheatstone bridge and write the equation for unknown resistance	2M	BTL3
	G	Define transducers	2M	BTL1
	H	Recite the applications of photo diode	2M	BTL1

PART – B

(5 x 12 = 60M)

- Note:**
1. This Part consists of 10 QUESTIONS
 2. Answer any 1 question from each Section. Each question carries 12 Marks.
 3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	Describe the construction and working of moving iron attraction type instrument also derive the expression for torque developed	6M	BTL2
2.B	Develop a multirange dc milliammeter with a basic meter having a resistance 75Ω and full scale deflection for the current of 2 mA. The required ranges are 0 – 10 mA, 0 – 50 mA, 0 – 100 mA.	6M	BTL2

(OR)

3.A	How will you extend the range of voltmeter? Derive the expression for multiplier and compare shunt with multiplier.	6M	BTL2
3.B	Describe the working of eddy current damping with neat sketch	6M	BTL3

SECTION - II

4.A	Explain the principle and operation of DC Crompton's potentiometer	6M	BTL2
4.B	Demonstrate the working of current transformer, also mention why secondary of CT should not be open circuited?	6M	BTL3

(OR)

5.A	Explain the construction and working of Coordinate type Potentiometer and draw its phasor diagram	6M	BTL3
5.B	Describe how will you measure the self-reactance of a coil using potentiometer	6M	BTL1

SECTION - III

6.A	Describe the working principle of dynamometer type wattmeter	6M	BTL3
6.B	Draw the neat sketch of single phase induction type energy meter. Explain the functions of driving systems, moving system, braking system and registering system in Energy meter.	6M	BTL3

(OR)

7.A	With the help of circuit connection and phasor diagram explain how two Wattmeter's can be used to measure active power in a 3 phase system. Also derive the equation for power factor and reactive power	12M	BTL3
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SECTION – IV

8.A	The four arms of a Hay's AC bridge are arranged as follows: AB is a coil of unknown impedance; BC is a non-inductive resistor of 1000 Ω ; CD is a non-inductive resistor of 833 Ω in series with a standard capacitor of 0.38 μF ; DA is a non-inductive resistor of 16,800 Ω . If the supply frequency is 50 Hz, determine the inductance and the resistance at the balanced condition.	12M	BTL3
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(OR)

9.A	Derive the balanced condition of modified kelvin's double bridge and conclude how the contact / lead resistance problem can be eliminated	12M	BTL3
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SECTION – V

10.A	List out few characteristics and choice of transducers	4M	BTL2
10.B	Explain the working principle of LVDT with neat diagram	8M	BTL3

(OR)

11.A	Explore working principle of DSO with block diagram and discuss its advantages and disadvantages, over CRO	12 M	BTL3
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B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, NOVEMBER - 2023
MICRO PROCESSORS AND MICRO CONTROLLERS

(ECE, EEE)

[Time: 3 Hours]

[Max. Marks: 70]

PART – A

(5 x 2 = 10M)

- Note:** 1. This Part consists of 8 QUESTIONS
 2. Answer any 5 questions. Each question carries 2 Marks

.1	A	Write a program to move a string of data words from offset 2000H to offset 3000H the length of the string is 0FH	2M	BTL1
	B	Write 8086 ALP for the Block Transfer of Data	2M	BTL1
	C	Draw the 8051 Timing Diagram	2M	BTL2
	D	Write 8051ALP for the Shift Right, Shift Left, Rotate Right, Rotate Left	2M	BTL1
	E	State the features of 8051	2M	BTL1
	F	How memory allocation is used for data processing	2M	BTL1
	G	Write a simple program using Thumb instruction.	2M	BTL1
	H	Justify Memory processing and commands used in OMAP processor	2M	BTL2

PART – B

(5 x 12 = 60M)

- Note:** 1. This Part consists of 10 QUESTIONS
 2. Answer any 1 question from each Section. Each question carries 12Marks.
 3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	Differentiate minimum and maximum modes of operation of 8086.	5M	BTL1
2.B	Explain the different general purpose registers of 8086	7M	BTL2

(OR)

3.A	Explain different assembler directives and operators of 8086 in brief	7M	BTL1
3.B	Explain the different string manipulation operations of 8086.	5M	BTL2

SECTION - II

4.A	Explain about I/O ports of 8051. (Ports – 0, 1, 2, 3)	6M	BTL1
4.B	Draw the pin diagram of 8051 and explain the function of each pin	6M	BTL2

(OR)

5.A	Explain (i) NMI (ii) INTR	5M	BTL1
5.B	Explain with a neat diagram the architecture of 8051	7M	BTL2

SECTION - III

6.A	Draw the block diagram for the following chips and explain: (i) 8255 PPI (ii) 8259 PIC (iii) 8251 USART.	7M	BTL1
6.B	Explain the different modes of operation in 8255	5M	BTL2

(OR)

7.A	Explain with block, pin, and timing diagrams the functionality of ADC 0808	6M	BTL1
7.B	Explain the transfer of control during the execution of an ISR	6M	BTL2

SECTION – IV

8.A	Explain about ARM instructions set.	6M	BTL1
8.B	What is PSR, explain in detail.	6M	BTL2

(OR)

9.A	Explain about different Registers in ARM based architecture.	7M	BTL1
9.B	Write a simple program for Memory allocation in an ARM processor	5M	BTL2

SECTION – V

10.A	Design Architecture of CORTEX processor	7M	BTL3
10.B	Design block diagram for OMAP processor	5M	BTL3

(OR)

11.A	Write a Simple Program using Instructions of the CORTEX processor	6M	BTL1
11.B	Explain registers used in OMAP Processor	6M	BTL2



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B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, NOVEMBER-2023 POWER SEMICONDUCTOR DRIVES (EEE)

[Time: 3 Hours]

[Max. Marks: 70]

PART – A

(5 x 2 = 10M)

- Note:** 1. This Part consists of 8 QUESTIONS
2. Answer any 5 questions. Each question carries 2 Marks.

1	A	What is an individual electric drive? Give some examples	2M	BTL1
	B	List out some advantages of electrical drive?	2M	BTL1
	C	How many thyristors does we need in half wave converter? Why?	2M	BTL1
	D	List the advantages offered by dc chopper drives over line-commutated converter-controlled dc drives	2M	BTL1
	E	Why V/f ratio must be constant for a frequency-controlled induction motor drive?	2M	BTL1
	F	Write the concept of heat dissipation in AC machines.	2M	BTL1
	G	What is dq axis? Explain it.	2M	BTL1
	H	Draw the block diagram of closed loop operation of synchronous motor drives.	2M	BTL1

PART – B

(5 x 12 = 60M)

- Note:** 1. This Part consists of 10 QUESTIONS
2. Answer any 1 question from each Section. Each question carries 12 Marks.
3. Illustrate your answers with NEAT sketches wherever necessary.

SECTION - I

2.A	Explain the different components of basic electrical drive system.	6M	BTL2
2.B	Explain the operation of a separately excited dc motor supplied from 1-phase fully controlled rectifier with necessary diagrams. Assume Continuous conduction.	6M	BTL2

(OR)

3.A	How do you define the active and passive load torques? What are the differences between the two?	6M	BTL2
3.B	Explain the operation of a separately excited dc motor supplied from 3-phase fully controlled rectifier with necessary diagrams. Assume Continuous conduction.	6M	BTL2

SECTION - II

4.A	Distinguish between class A and class B choppers with suitable examples of speed control of motors.	6M	BTL3
4.B	A 220V, 960 rpm, 90A DC separately excited motor has an armature resistance of 0.06 ohm. It is coupled to an overhauling load with a torque of 300 N-m. Determine the speed at which the motor can hold the load	6M	BTL2

	by regenerative braking?		
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(OR)

5.A	Describe different braking methods employed for electrical motors.	6M	BTL2
5.B	A 230 V, 960 rpm and 200A separately excited dc motor has an armature resistance of 0.02Ω . The motor is fed from a chopper, which can provide both motoring and braking operations. The source has a voltage of 230V. Assuming continuous conduction: (i) Calculate the time ratio of chopper for the motoring action at rated torque and 350 rpm. (ii) Determine the maximum possible speed, if maximum value of time ratio is 0.95 and maximum permissible motor current is twice the rated value.	6M	BTL3

SECTION - III

6.A	Why stator voltage control is an inefficient method of induction motor speed control.	6M	BTL2
6.B	Discuss speed control of induction motor from stator side with speed-torque curves.	6M	BTL3

(OR)

7.A	Write some of the applications of stator voltage control of three phase induction motor.	6M	BTL2
7.B	Explain with the help torque-speed characteristics, why stator voltage control is suitable for speed control of induction motors in fan and pump drives. Draw a neat circuit diagram for speed control of scheme of 3 phase induction motor using AC voltage controller.	6M	BTL3

SECTION – IV

8.A	Draw the circuit diagram and explain the working of a slip power recovery system using Solid - State Scherbius system for a three-phase induction motor.	6M	BTL2
8.B	A 440 V, 50 Hz, 6-pole Y-connected wound rotor motor has the following parameters: $R_s=0.5\Omega$, $R_r'=0.4\Omega$, $X_s=X_r'=1.2\Omega$, $X_m=50\Omega$, stator to rotor turns ratio is 3.5. Motor is controlled by static rotor resistance control. External resistance is chosen such that the breakdown torque is produced at standstill for a duty ratio of zero. Calculate the value of external resistance.	6M	BTL2

(OR)

9.A	Draw the circuit diagram and explain the operation of rotor- resistance control of Induction motor. Mention the advantages and disadvantages of the above method of control.	6M	BTL2
9.B	Explain Static Kramer drive for a three-phase induction motor.	6M	BTL3

SECTION – V

10.A	Describe self-controlled and separate controlled mode of operation of a synchronous motor drive in detail and compare them.	6M	BTL2
10.B	Draw the block diagram of a closed loop synchronous motor drive fed from VSI.	6M	BTL3

(OR)

11.A	When operating in true synchronous mode, why the frequency must be changed in small steps?	6M	BTL2
11.B	Give advantages of self-controlled variable speed synchronous motor drive and applications	6M	BTL3
