



# 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

NIRF India Ranking, Accepted by MHRD, Govt. of India

## B.TECH IV YEAR II SEMESTER END EXAMINATIONS, APRIL -2023

### COMPUTER 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 | Define cybercrime.                                 | 2M | BTL1 |
|   | B | Write about digital forensics.                     | 2M | BTL1 |
|   | C | List out the steps for creating forensics.         | 2M | BTL2 |
|   | D | Define forensic duplication.                       | 2M | BTL1 |
|   | E | Define network forensics.                          | 2M | BTL1 |
|   | F | Brief about computer forensics software tools.     | 2M | BTL2 |
|   | G | List out some of the e-mail crimes and violations. | 2M | BTL1 |
|   | H | Write about virtual machines.                      | 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 12Marks.  
3. Illustrate your answers with NEAT sketches wherever necessary.

#### SECTION - I

|     |                                                                       |    |      |
|-----|-----------------------------------------------------------------------|----|------|
| 2.A | Differentiate between worms and viruses.                              | 6M | BTL4 |
| 2.B | List the steps involved in incident response methodology. Explain it. | 6M | BTL1 |

(OR)

|     |                                                  |    |      |
|-----|--------------------------------------------------|----|------|
| 3.A | Discuss about the different types of cybercrime. | 6M | BTL4 |
| 3.B | Mention the role of computers in cybercrimes.    | 6M | BTL2 |

#### SECTION - II

|    |                                                                                         |     |      |
|----|-----------------------------------------------------------------------------------------|-----|------|
| 4. | Elaborate in detail about Initial Response & Volatile Data Collection from Unix system. | 12M | BTL4 |
|----|-----------------------------------------------------------------------------------------|-----|------|

(OR)

|     |                                                           |    |      |
|-----|-----------------------------------------------------------|----|------|
| 5.A | Explain about the Forensic Duplication Tool Requirements. | 6M | BTL2 |
| 5.B | Discuss about Forensic Duplication.                       | 6M | BTL3 |

**SECTION - III**

|     |                                         |    |      |
|-----|-----------------------------------------|----|------|
| 6.A | Discuss about validating forensic data. | 6M | BTL4 |
| 6.B | Describe the data hiding techniques.    | 6M | BTL3 |

(OR)

|    |                                                                         |     |      |
|----|-------------------------------------------------------------------------|-----|------|
| 7. | List and explain some of the standard procedures for network forensics. | 12M | BTL4 |
|----|-------------------------------------------------------------------------|-----|------|

**SECTION – IV**

|     |                                                                              |    |      |
|-----|------------------------------------------------------------------------------|----|------|
| 8.A | Differentiate between the software and hardware tools of computer forensics. | 6M | BTL4 |
| 8.B | Mention the role of e-mail in investigation.                                 | 6M | BTL3 |

(OR)

|    |                                                |     |      |
|----|------------------------------------------------|-----|------|
| 9. | Explain the specialized e-mail forensic tools. | 12M | BTL4 |
|----|------------------------------------------------|-----|------|

**SECTION – V**

|      |                                          |    |      |
|------|------------------------------------------|----|------|
| 10.A | Describe about Microsoft file structure. | 6M | BTL4 |
| 10.B | Examine the NTFS disks                   | 6M | BTL1 |

(OR)

|      |                                       |    |      |
|------|---------------------------------------|----|------|
| 11.A | Describe the Microsoft startup tasks. | 6M | BTL4 |
| 11.B | Discuss about MS-DOS startup tasks.   | 6M | BTL2 |

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## B.TECH IV YEAR II SEMESTER END EXAMINATIONS, APRIL - 2023

### POWER QUALITY & FACTS DEVICES

(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 | Define power quality. Why power quality has become an issue in recent years | 2M | BTL1 |
|    | B | What are the objectives of power quality monitoring?                        | 2M | BTL1 |
|    | C | Write the difference between failures, outage                               | 2M | BTL2 |
|    | D | Define Power system reliability                                             | 2M | BTL1 |
|    | E | What is the need of FACTS devices                                           | 2M | BTL1 |
|    | F | What are the objectives of shunt compensation                               | 2M | BTL1 |
|    | G | What are the objectives of series compensation                              | 2M | BTL2 |
|    | H | What are the benefits of FACTS controllers                                  | 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 12Marks.
  3. Illustrate your answers with NEAT sketches wherever necessary.

#### SECTION - I

|     |                                                                                                                                         |    |      |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|----|------|
| 2.A | Explain the following terms related with PQ problem.<br>a) Sags b) Swell c) Waveform distortion<br>d) Harmonics e) Voltage fluctuations | 6M | BTL2 |
| 2.B | What are the remedies to improve power quality                                                                                          | 6M | BTL2 |

(OR)

|     |                                                                                               |    |      |
|-----|-----------------------------------------------------------------------------------------------|----|------|
| 3.A | What are the power quality problems? Draw the flow chart for the PQ problems in any industry? | 6M | BTL2 |
| 3.B | Write short notes on power quality monitoring                                                 | 6M | BTL3 |

#### SECTION - II

|     |                                                                                                                        |    |      |
|-----|------------------------------------------------------------------------------------------------------------------------|----|------|
| 4.A | What are causes for Long interruptions? Write the limits interruption frequencies and limits of interruption duration. | 6M | BTL2 |
| 4.B | Compare observations and reliability evaluation.                                                                       | 6M | BTL4 |

(OR)

|     |                                                                                                                   |    |      |
|-----|-------------------------------------------------------------------------------------------------------------------|----|------|
| 5.A | What is the origin of short interruptions? And write the difference between medium and low voltage systems.       | 6M | BTL2 |
| 5.B | Find the voltage and current tripping during the fault period and at post fault period when single phase tripping | 6M | BTL3 |

**SECTION - III**

|     |                                                                                                                 |    |      |
|-----|-----------------------------------------------------------------------------------------------------------------|----|------|
| 6.A | Give the importance of FACTS controller for Power Quality and list out the various FACTS devices                | 6M | BTL4 |
| 6.B | Derive an expression for power transfer between the two bus system assuming that transmission line is lossless. | 6M | BTL3 |

**(OR)**

|     |                                                                            |    |      |
|-----|----------------------------------------------------------------------------|----|------|
| 7.A | Explain the effect of FACTS on line loading capacity                       | 6M | BTL3 |
| 7.B | Explain in detail about the classification of different FACTS controllers. | 6M | BTL3 |

**SECTION – IV**

|     |                                                                                                   |    |      |
|-----|---------------------------------------------------------------------------------------------------|----|------|
| 8.A | Explain how the shunt compensation effects the mid point voltage regulation and voltage stability | 6M | BTL3 |
| 8.B | Write short note on switching converter type var generators                                       | 6M | BTL2 |

**(OR)**

|     |                                                                                                   |    |      |
|-----|---------------------------------------------------------------------------------------------------|----|------|
| 9.A | Explain how the shunt compensation effects the transient stability and power oscillation damping. | 6M | BTL3 |
| 9.B | Write short note on hybrid var generators                                                         | 6M | BTL2 |

**SECTION – V**

|      |                                                                                                 |    |      |
|------|-------------------------------------------------------------------------------------------------|----|------|
| 10.A | With power angle curve explain how transient stability is improved with the series controllers. | 6M | BTL3 |
| 10.B | Write short notes on TSSC                                                                       | 6M | BTL3 |

**(OR)**

|      |                                                                                                                                    |    |      |
|------|------------------------------------------------------------------------------------------------------------------------------------|----|------|
| 11.A | Describe the capabilities of TCSC in improving transient stability, power oscillation damping, and voltage stability applications? | 6M | BTL4 |
| 11.B | Explain with a neat block diagram the closed loop control of TCSC .                                                                | 6M | BTL2 |

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## B.TECH IV YEAR II SEMESTER END EXAMINATIONS, APRIL-2023

### UTILISATION OF ELECTRICAL ENERGY (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 are the various welding processes used in general engineering?  | 2M | BTL1 |
|    | B | What are the types of electric loads based on torque?                | 2M | BTL1 |
|    | C | What is Lamp Efficiency?                                             | 2M | BTL1 |
|    | D | Write any two properties of Good heating element.                    | 2M | BTL1 |
|    | E | Classify the advantages of diesel electric traction.                 | 2M | BTL2 |
|    | F | Define the term 'Dead weight'.                                       | 2M | BTL1 |
|    | G | What are the advantages of electric braking over mechanical braking? | 2M | BTL1 |
|    | H | Why a series motor is preferred for the electric traction?           | 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 12Marks.  
3. Illustrate your answers with NEAT sketches wherever necessary.

#### SECTION - I

|     |                                                                                                                                        |     |      |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| 2.A | Give only the necessary expression for the temperature rise of an electric machine.                                                    | 2M  | BTL2 |
| 2.B | Write the necessity of starting equipment for a motor. Analyze the various starting characteristics of DC motors and Induction motors. | 10M | BTL3 |

(OR)

|     |                                                                                   |     |      |
|-----|-----------------------------------------------------------------------------------|-----|------|
| 3.A | Analyze the necessary expression for the temperature rise of an electric machine. | 10M | BTL3 |
| 3.B | What is intermittent load?                                                        | 2M  | BTL1 |

#### SECTION - II

|     |                                                                                                                                     |     |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| 4.A | Explain in brief how heating is done in the following cases:<br>i) Induction heating ii) Resistance heating iii) Dielectric heating | 10M | BTL3 |
| 4.B | Write any two advantages of Electric heating.                                                                                       | 2M  | BTL1 |

(OR)

|     |                                                                      |     |      |
|-----|----------------------------------------------------------------------|-----|------|
| 5.A | List and analyze the different methods of Electric Welding in brief. | 10M | BTL3 |
| 5.B | What are the drawbacks of Electric welding?                          | 2M  | BTL1 |

**SECTION - III**

|     |                                                                                                                                                                                                                                                                                                                                                     |    |      |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|
| 6.A | The illumination at a point on a working plane directly below the lamp is to be 100 lumens/m <sup>2</sup> . The lamp gives 200 Candle power uniformly below the horizontal plane. Evaluate:<br>(i) The height at which the lamp is suspended.<br>(ii) The illumination at a point on the working plane 2 m away from the vertical axis of the lamp. | 8M | BTL3 |
| 6.B | State the terms illumination and illumination intensity.                                                                                                                                                                                                                                                                                            | 4M | BTL1 |

(OR)

|     |                                                                                                                                                                                                                   |    |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|
| 7.A | Two lamps one 200cp and another 500cp are hung at a height of 10m and 25m respectively. The horizontal distance between poles is 80m. Evaluate the illumination at the midpoint between the poles and the ground. | 9M | BTL3 |
| 7.B | Distinguish between Fluorescent tube and filament lamp.                                                                                                                                                           | 3M | BTL1 |

**SECTION – IV**

|     |                                                                                        |    |      |
|-----|----------------------------------------------------------------------------------------|----|------|
| 8.A | Construct the existing electric traction systems in India.                             | 6M | BTL5 |
| 8.B | Analyze the operation of rheostat braking and regenerative braking of traction motors. | 6M | BTL3 |

(OR)

|     |                                                                                                                                                                                                                                                                                                                                                                                                 |    |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|
| 9.A | A 200 tonne electric train with scheduled speed of 40 kmph runs between two stations 2 km apart with an acceleration of 2 kmphs and braking retardation of 3kmphs. The train resistance is 50 Nw-m / tonne, effect of rotational inertia 10%, over all efficiency 70% and station stop 10 sec. calculate<br>i) The maximum power output from the wheels<br>ii) The specific energy consumption. | 6M | BTL4 |
| 9.B | Explain the function of a reactor used in series with traction motors?                                                                                                                                                                                                                                                                                                                          | 6M | BTL5 |

**SECTION – V**

|      |                                                                                    |    |      |
|------|------------------------------------------------------------------------------------|----|------|
| 10.A | Explain the terms<br>i) Adhesive weight ii) Train resistance iii) Speed time curve | 8M | BTL3 |
| 10.B | Classify the a.c. motors used in traction.                                         | 4M | BTL1 |

(OR)

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |      |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| 11.A | The scheduled speed of a trolley service is to be 53km/hr. The distance between stops is 2.8km. The track is level and each stop is of 30 sec duration. Using simplified speed-time curve, calculate the maximum speed, assuming the acceleration to be 2km/hr/sec, retardation 3.2km/hr/sec, the dead weight of the car as 16 tonnes, rotational inertia as 10% of the dead weight and track resistance as 40 newtons/tonne. If the overall efficiency is 80%, calculate (i) the maximum power output from the driving axles (ii) the specific energy consumption in watt-hr/tonnekm. | 10M | BTL3 |
| 11.B | What is notching up period?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2M  | BTL1 |