Code No.: 50H12 | 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 SUPPLEMENTARY EXAMINATIONS, DECEMBER -2018

Subject: **Engineering Economics And Accountancy**

Branch: **Common for EEE, ECE and CSE**

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

PART – A

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

1. Define the linkages of managerial economics with other disciplines
2. Give a brief note on 'Marginal Rate of technical Substitution'
3. What is Oligopoly Competition?
4. What is Internal Rate of Return (IRR)?
5. Write about profitability ratios

PART-B

Answer any FIVE Questions of the following **5x 10 Marks= 50Marks**

1. a. Managerial Economics is multi – dimensional discipline, explain. [5M]
   b. Explain the quantitative methods of Demand Forecasting. [5M]
2. a) Discuss the salient feature and significance of managerial economics. [5M]
   b) Define Demand? Why the Demand curve slopes downwards from left to right? [5M]
3. a) Differentiate Increasing, Decreasing and Constant returns to scale of production? [3M]
   b) Explain least cost combination of inputs [4M]
   c) Explain graphical representation of breakeven point [3M]
4. a. Explain Cobb- Douglas production function [5M]
   b. A company makes a product with a selling price of Rs.35 per unit and Variable cost of Rs.20 per unit. The fixed costs for the period are Rs.45, 000, what is the required output level to make a target profit of Rs.15, 000. [5M]
5. a) What is monopoly? Explain the features and causes of monopoly competition. [5M]
   b) Distinguish between Perfect competition and monopoly [5M]
6. a) Explain how perfect competition under monopoly. [5M]
   b) Define Perfect competition? Explain its features? [5M]
7. Explain the Methods of Capital Budgeting. [10M]
8. a) Define accounting Cycle. [5M]
   b) What are the advantages of double entry book - keeping system? [5M]

Code No.: **50450** | **MR15 - 2015-16 Batch**

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III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER -2018

Subject: **Microprocessors and Microcontrollers**

Branch: **EEE**

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

PART – A

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

1. What is meant by microprocessor?
2. Define addressing modes?
3. What is meant by USART?
4. Write about Program Status Register.
5. List out the different types of timers in 8051 microcontrollers

.PART-B

Answer any FIVE Questions of the following **5x 10 Marks= 50Marks**

1. Mention and explain the signal descriptions / PIN configuration of 8086 in maximum mode [10M]
2. Draw and explain the register organization of 8086 in detail. [10M]
3. List the addressing modes of 8086 and describe each addressing mode with one example? [10M]
4. Discuss the following arithmetic instructions with suitable examples. [10M]
   (i) ADD (ii) ADC (iii)AAA (iv) DAA (v) INC
5. Draw and explain the modes of operation of 8255 PPI. [10M]
6. What are the different types of interrupt supported by 8086? Explain interrupt vector table of 8086. [10M]
7. Write a short note on addressing Modes of 8051 with suitable examples. [10M]
8. Using appropriate 8051 on chip timers, write an ALP for the following.
   a) Generate a delay of 100ms using an external frequency of 25KHz. [5M]
   b) Generate a delay of 10ms using internal machine cycle clock. (f_{osc}=11.059MHz) [5M]

Code No.: **50219**

MR15 - 2015-16 Batch

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III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER -2018

Subject: **Electrical Measurements And Instrumentation**

Branch: **EEE**

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

PART – A

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

1. How are measuring instruments classified?
2. Mention the different methods used for measurement of medium resistances.
3. State the applications of DC & AC Potentiometer.
4. Give basic block diagram of spectrum analyzer.
5. Differentiate sensor from transducer.

PART-B

Answer any FIVE Questions of the following **5x 10 Marks= 50Marks**

1. Explain with a neat sketch, the working principle of Single phase energy meter.
2. Describe the constructional details, working of a moving iron attraction type meter? Derive torque equation?
3. a) Draw the circuit of a Kelvin double bridge and derive the condition for balance.

   b) Derive the equation for balance and draw phasor diagram for Schering bridge.

4. a) What is the capacitance comparison bridge and derive its balance equation.

   b) A capacitance comparision bridge is used to measure the capacitive impedance at a frequency of 3KHz. The bridge constants at bridge balance are C_3=10μF, R_1 = 1.2KΩ, R_2 = 100 KΩ, R_3 = 120 KΩ.
5. Explain the operation of a current transformer (CT) with a neat sketch & draw phasor diagrams.
6. a) Why a potentiometer does not load the voltage source whose voltage is being determined?

   b) How C.T and P.T can be used to external the range of energy meter?
7. Discuss how different lissajous figures can be used to measure various parameters?
8. What is data acquisition system? With generalized block diagram, explain the functions of it.

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III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER -2018

Subject: **SWITH GEAR AND PROTECTION**

Branch: **EEE**

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

PART – A

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

1. What are the limitations of minimum oil breakers?
2. List the essential qualities of protective relay.
3. Illustrate the different protection schemes used in busbars?
4. What is neutral grounding?
5. What are the causes for over voltages?

PART-B

Answer any FIVE Questions of the following **5x 10 Marks= 50Marks**

1. What is a circuit breaker? Explain the operation of bulk oil circuit breaker?
2. a). For a 132kV system, the reactance & capacitance up to the location of the circuit breaker is 3Ω and 0.015μF respectively. Calculate the frequency of transient oscillation and maximum value of restriking voltage.

   b) What are the advantages & disadvantages of air-blast circuit breakers?
3. a) Explain the principle of operation of Directional relays used for transmission line protection (5M)

   b).Define and explain i) Basic requirements of protective relay

   ii) Pick up value iii) Plug Setting Multiplier (PSM) iv) Time Setting Multiplier (TSM)
4. a) Explain the operating principle of an impedance relay?

   b) With a neat diagram, explain the operation of balanced beam type relay?
5. a) Explain the distance protection scheme for the feeders

   b) How the transformer protects from its internal faults? Explain.
6. a) What are the types of faults encountered in transformers?

   b) An 11kV, 100 MVA alternators is grounded through a resistance of 5Ω. The CT's have a ratio 1000/5. The relay is set to operate when there is an out of balance current of 1A. What % of the generator winding will be protected by the percentage differential protection?(5M)
7. What is the need of grounding the neutral? Describe briefly the various grounding techniques.
8. Discuss the principle and working of a valve type lightning arrester with neat diagram.

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III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER -2018

Subject: **Electrical Distribution Systems & Automation**

Branch: **EEE**

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

PART – A

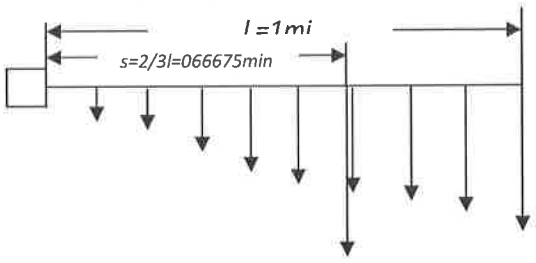
Answer ALL questions of the following **5x2Mark=10 Marks**

1. Define demand factor and coincidence factor.
2. Write the benefits derived through optimal substations.
3. Write short notes on radial distributor.
4. Define circuit breaker and state its functions.
5. Why voltage control and power factor correction are necessary in distribution system?

PART-B

Answer any FIVE Questions of the following **5x 10 Marks= 50Marks**

1. a) Write short notes on load duration curve. (5M)
   b) The annual duration curve of a plant is a straight line from 120 MW to 40 MW. The power is supplied with one generating unit of 100 MW and two units of 45 MW capacity each. Determine i) installed capacity ii) load factor iii) plant capacity factor iv) maximum demand and v) utilization factor. (5M)
2. The annual peak load input to a primary feeder is 1500 kW. The voltage drop and losses shows that the total loss at the time of peak load is 100 kW. The total annual energy supplied to the sending end of the feeder is 5.5×10^6 kWh.
   a) Determine the annual loss factor
   b) Calculate the total annual energy loss and the annual cost if the unit charge is Rs. 2.5. (10M)
3. Draw the single line diagrams of radial type and loop type primary feeders and mention the various components (10M)
4. a) Mention the various factors that are to be considered in selecting the ideal substation. (5M)
   b) List the design and operation aspects affected by the primary feeder voltage level. (5M)
5. Assume that the feeder shown in figure has the three phase 4.16kV wye-grounded feeder main has #4 copper conductors with an equivalent spacing of 37 inches between phase conductors and a lagging load power factor of 0.9, but the 500kVA load has an increasing load density. Calculate the percent voltage drop in the main. (10M)



6. A single phase feeder circuit has total impedance 1+j3 ohms, receiving end voltage is 2.4 kV and current is $30\angle -30^0$. Determine i) power factor of load ii) load power factor for which impedance is maximum. (10M)
7. a) Write short notes on driving factors of smart grid. (5M)
   b) What are the merits and demerits of automatic line sectionalizers? (5M)
8. a) Explain the effect of series capacitors on distribution systems. [5M]
   b) Describe the significance of Automatic Meter Reading in distribution automation. [5M]

Code No.: **50433**

MR15 - 2015-16 Batch

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III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER -2018

Subject: **VLSI-DESIGN**

Branch: **EEE**

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

PART – A

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

1. What is the difference between Enhancement and Depletion mode MOSFET
2. Draw the BiCMOS inverter.
3. What are stick diagrams?
4. List out the gate circuits used in gate level design.
5. List out the various architectures used for the FPGA?

PART-B

Answer any FIVE Questions of the following **5x 10 Marks= 50Marks**

1. Explain PMOS Fabrication steps with neat diagrams
2. (a) Explain about encapsulation in IC fabrication
   (b) Explain about metallization in IC fabrication
3. Derive the relationship between drain to source current I_{ds} verses drain to source voltage V_{ds} in non-saturated region?
4. (a) Explain the operation of a CMOS inverter.
   (b) Explain the operation of an nMOS inverter
5. a) Find the scaling factors of any three device parameters
   b) Explain lambda based design rules for 2um wires and contacts
6. (a) Write the equation for MOS transistor threshold voltage and explain the quantities involved in it.
   (b) Explain what is scaling model
7. a) Draw the basic structure of a dynamic CMOS logic gate with examples
   b) How switch logic can be implemented using Pass transistor?
8. a) Discuss about carry select adder with neat diagrams
   b) Explain briefly about Braun array multiplier