

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, MAY-2018**Subject: Computer Methods In Power SystemsBranch: **EEE**

Time: 3 hours

Max. Marks: 75

PART-A**I. Answer ALL Questions of the following****5x1M=5M**

1. Define terms Cutsets and Basic Cutsets.
2. What is DC Load Flows?
3. How the Reactors are classified?
4. Define present state stability limit.
5. Define Critical Clearing Angle.

II. Answer ALL Questions of the following**10x2M=20M**

1. Draw and explain Primitive network in Admittance form.
2. Draw and explain Primitive network in Impedance form.
3. What are assumptions made during study Fast Decouple Load Flow studies?
4. What are the various types of buses in load flow studies?
5. List different causes of Short Circuits in Power System.
6. What are the significances of symmetrical components?
7. Draw zero sequence network for Y-Y & Y- Δ transformer.
8. Draw Power angle characteristics and Explain.
9. Define constants M and H.
10. Explain briefly about fast operating circuit breakers

PART-B**Answer ALL Questions of the following****5x10M=50M**

1. Derive the equation for self and mutual impedance of Z_{BUS} . for the addition of a branch.

(OR)

2. Using Bus building algorithm, determine the Z_{BUS} for the data shown in the following table.

Element	SELF		MUTUAL	
	Buscode (p-q)	$Y_{pq, pq}$	Bus code (r-s)	$Y_{pq, rs}$
1	1-2	0.4		
2	1-3	0.3		
3	2-3(1)	0.2		
4	2-3(2)	0.5	1-2	0.2

3. a) Write the step by step procedure for load flow analysis by Newton-Raphson method. (6M)
b) Compare the following methods of load flow solutions: (4M)
(i) Gauss-Siedel method (ii) Newton-Raphson method (iii) Decoupled methods

(OR)

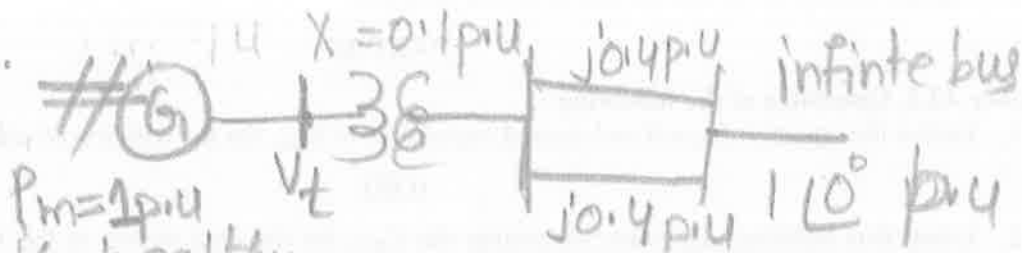
4. The system data for a load flow problem are given in Table 1 and Table 2. Determine bus voltages at the end of 1st iteration by Gauss-Seidal method. Take acceleration factor as 1.6.

Table 1		Table 2				
Bus Code	Admittances	Bus Code	PD in p.u	QD in	V in p.u	Remarks
1 - 2	$2 - j8$	1	-	-	1.06 $\angle 0^\circ$	Slack
1 - 3	$1 - j4$	2	0.5	0.2	-	PQ
2-3	$0.666 - j2.664$	3	0.4	0.3	-	PQ

5. a) What are the advantages of per unit system? (3M)
 b) A generating station has five section bus-bar connected with a tie bar through 7.5% reactors rated at 3000 kVA. Each generator is of 3000 kVA with 10% reactance and is connected to one section of the bus bar. Find total steady input to a dead short circuit between the lines on one of the sections of the bus-bars (i) with and (ii) without reactors. (7M)

(OR)

6. a) What do you understand by short-circuit KVA ? Explain. (3M)
 b) Two generators P and Q each of 6000 KVA capacity and reactance 8.5% are connected to a bus bar at A. A third generator R of capacity 12,000 KVA with 11 % reactance is connected to another bus bar B. A reactor X of capacity 5000 KVA and 5% reactance is connected between A and B. Calculate the short circuit KVA supplied by each generator when a fault occurs (a) at A and (b) at B. (7M)
7. a) Derive the power angle equation for a SMIB system. Also draw the power-angle curve.
 b) A Generator shown in figure is delivering power to infinite bus. Find maximum power that can be transferred when system is healthy. (6M +4M)



(OR)

8. Derive the formula for power transfer through a transmission line and also derive the condition for maximum power transfer.
9. a) Write short note on auto reclosing circuit breakers. (4M)
 b) What are the factors that affect the transient stability? Explain in detail. (6M)
- (OR)
10. A generator operating at 50Hz delivers 1.0 p.u. power to an infinite bus through a transmission circuit in which resistance is ignored. A fault takes place reducing the maximum power transferable to 0.5 p.u., whereas before the fault this power was 2.0 p.u. and after clearance of the fault it is 1.5 p.u.. Determine the critical clearing angle by the use of equal area criterion and derive formula used.

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III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018Subject: Microprocessors and Microcontrollers

Branch: Common to EEE & ECE

Time: 3 hours

Max. Marks: 75

PART-A**I. Answer ALL questions of the following****5 x 1M=5 M**

1. What is stack pointer of 8086?
2. What are the Rotate instructions of 8086.
3. What is meant by the term ISR?
4. What is microcontroller?
5. Draw the bit table of TMOD register

II. Answer ALL questions of the following**10 x 2M=20 M**

1. What is the advantage using interrupts?
2. List the features of 8086 microprocessor?
3. List the addressing modes of 8086.
4. State the need for an instruction set.
5. State the need of serial I/O communication.
6. List the different operating modes of serial port with their band rates.
7. Explain the program counter and data pointer?
8. Explain the program status word in 8051 microcontroller?
9. Write the structure of PCON?
10. What are the serial Interrupts of 8051?

PART-B**Answer ALL questions of the following****5 x 10 M=50 M**

1. Draw and discuss the minimum mode of 8086 system with relevant read and write cycle timing diagrams.

OR

2. Explain the function of following pins in 8086.

- | | | | |
|--|-----------------------|-----------|-------------------|
| i) NMI | ii) \overline{INTA} | iii) DEN | iv) S_1 & S_0 |
| v) $\overline{QS_0}$ & $\overline{QS_1}$ | vi) IO/\overline{M} | vii) HOLD | viii) HLDA |

3. a) Explain the different types of instruction formats used in 8086.
b) Explain addressing modes of 8086.

OR

4. a) Write a program to find the factorial of 5.
b) Write an algorithm for converting ASCII to BCD and draw the flow chart for the same?

5. a) What is meant by interfacing? Explain the brief description of 8255 PPI chip.
b) Explain the different modes of operation of 8255.

OR

6. a) Draw the block diagram of 8255 and explain each block.
b) Explain about interfacing of DAC with 8086 using 8255.
7. Write a program (in interrupt mode) to light the LEDs at port 0 (for sometime) If the switch connected at INT0 (P3.2) is pressed and to light the LEDs at port 2 (for some time) if the switch connected at INT1 (P3.3) is pressed. Assume that a crystal oscillator of 22MHz is used.

OR

8. a) Explain the architecture of 8051 Microcontroller with a neat sketch.
b) Explain bit level logical instructions of 8051.
9. Write a program in which 10 bytes of data stored in RAM locations starting from 45H are transferred serially. At the end of the data transfer, the value of R0 (i.e., 0) is displayed on P1.

OR

10. a) Discuss the interrupt structure of 8051. Mention the priority. Explain how least priority is made as highest priority.
b) Write 8051 program to generate a square wave of 5KHz frequency at pin P1.3. Assume XTAL=11.0592MHz. use Timer 1.