

III B.Tech. II Semester Supplementary Examinations December, 2014

Power System Analysis
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE of the following
All questions carry equal marks (14 Marks each)

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1. Explain the following
 - a) Cutset matrix
 - b) Bus incidence matrix
 - c) Basic loop incidence matrix
 - d) Branch path incidence matrix
2. Derive the expression for building Z_{BUS} when the added element is connected between an existing bus and a new bus, assume that the element is mutual coupled with one or more elements of partial network?
3. Explain the algorithm for Gauss-seidal method of load flow solution. Also explain how to handle Q – limits in voltage controlled busses?
4. Explain the Decoupled load flow method to find the solution of a system with the help of flowchart?
5. a) What are the advantages of per unit system?
b) Obtain p.u impedance diagram of the power system of Figure (1). Choose base quantities as 50MVA and 33KV

Generator: 30MVA, 10.5KV, $X''=1.2\Omega$ Transformers T1 & T2: 15MVA, 33/11KV, $X=30\Omega$ referred to HVTransmission line: 10Ω

Load: 60MW, 6.6KV, 0.85 lagging p.f

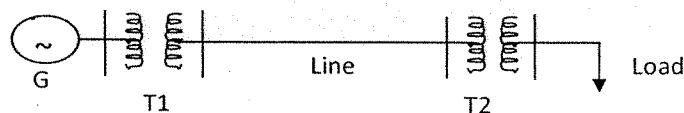


Figure (1)

6. A Balanced 200V, 3- Φ supply feeds balanced resistive load as shown in Figure (2). If the resistance R_{BC} is disconnected, Determine I_a , I_b and I_c and symmetrical components of I_a , I_b and I_c ?

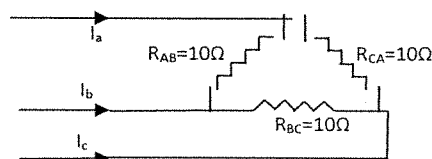


Figure (2)

7. Discuss the power angle curve of a synchronous machine and also give the classical representation of a synchronous machine in stability studies?
8. What is Equal Area criterion? Interpret this for a case when there is sudden short circuit at one end of the line of parallel lines?

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Computer System Architecture
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE of the following
All questions carry equal marks (14 Marks each)

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1. a) Explain about tri-state buffers. Explain the construction of bus with tri-state buffers. 7M
- b) Discuss in detail about various types of shift micro operations. 7M
2. a) Explain any four register reference instructions along with their purpose. 7M
- b) Describe about shift micro operations and discuss about 4 bit combinational shifter circuit in detail. 7M
3. a) Explain about the functioning of a control unit. 7M
- b) Explain how $X = (A+B) / (A-B)$ is evaluated in a stack based computer. 7M
4. a) Draw a flow chart which explains multiplication of two signed magnitude fixed point numbers. 7M
- b) Multiply 10111 with 10011 with the Booth multiplication algorithm. 7M
5. a) Describe about the associative memory with the help of block diagram. 7M
- b) Discuss in detail about cache memory with its organization. 7M
6. a) What is Direct Memory Access? Explain the working of DMA. 7M
- b) Discuss in detail about asynchronous serial data transfer. 7M
7. a) Describe in detail about vector processing. 7M
- b) Discuss about handling branches in instruction pipeline. 7M
8. a) What is multistage switching network? 7M
- b) Explain the operation on 8X8 Omega switching network with neat diagram. 7M

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Microprocessors and Microcontrollers
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE of the following
All questions carry equal marks (14 Marks each)

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1. a) Discuss the advantages of using memory segmentation. 6M
b) Define bus cycle and explain the minimum mode read and write cycle with neat timing diagram. 8M
2. a) What is the function of assembler directive? Explain the following assembler directives: 7M
(i) EXTRN (ii) PROC
b) What is procedure? Explain reentrant and recursive procedures. 5M
c) Give the difference between machine language and assembly language. 2M
3. a) Explain the functional block diagram of 8255 Programmable Peripheral Interface. 9M
b) Interface 8255 to 8086 in I/O mapped I/O mode. 5M
4. a) Draw the interfacing diagram for 8086 system in minimum mode with the following specifications: 8M
(i) 32KB RAM (ii) 8KB EPROM
Draw the memory map for the above interface
b) Briefly explain the programming and reading 8257 registers. 6M
5. a) Discuss the various ICWs and OCWs of 8259. 8M
b) Discuss how 8253 is used 6M
(i) To generate delay
(ii) To generate square wave
(iii) As programmable one shot
(iv) Hardware triggered mode
6. a) What are the various serial I/O interface techniques? Explain them. 7M
b) Develop sample programs for serial data transfer of the following: 7M
(i) To transmit one character
(ii) To receive one character
7. a) State various modes available for timer in 8051 microcontroller. 6M
b) Explain the instructions used to access external RAM. 6M
c) List the features of 8051 microcontroller. 2M
8. a) Explain the different addressing modes supported by MCS-96 microcontrollers with an example. 9M
b) Briefly explain about any five instructions supported by MCS-96 microcontrollers. 5M

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