III B.Tech. II Semester Supplementary Examinations December 2017
Electronic Measurements and Instrumentation
(Electronics and Communication Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (**14 Marks each**)
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1. a) Describe various errors in the measurement and their statistical analysis with neat illustrations.   7M

   b) Explain the construction and operating principles of D'Arsonval Galvanometer with neat sketch.   7M

2. a) Describe the operation of thermocouple type RF ammeter.   7M

   b) With a neat block diagram, explain the characteristics of digital voltmeter. 7M

3. Write brief notes on
   a) Signal Generator   7M
   b) Spectrum Analyzer   7M

4. a) With a neat Sketch, explain the construction and electrostatic deflection of CRO.   7M

   b) What are the various probes used for the measurements in CRO and describe the procedure to measure amplitude, frequency and phase waveform using Lissajous figures.   7M

5. Write Short notes on
   a) Digital Storage Oscilloscope   7M
   b) Digital Multimeter   7M

6. a) Explain the measurement of inductance using Anderson Bridge and derive the condition for balancing.   7M

   b) Describe the procedure to eliminate the Electromagnetic interference and noise reduction in bridges.   7M

7. Write the principles of
   a) Strain Gauge   7M
   b) Signal Conditioning Circuit   7M

8. a) Explain the fundamentals of analog and digital data recording techniques. 7M

   b) Describe various bus standards for measuring instruments.   7M

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Code: 1G366

III B.Tech. II Semester Supplementary Examinations December 2017
Microprocessors and Microcontrollers
(Electrical and Electronics Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (**14 Marks each**)
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1. a) Why the memory in 8086 processor is segmented? Explain Overlapping and Non-Overlapping segments.   7M

   b) What is a Queue? Explain the function of Queue in 8086 processor. When the Queue of 8086 fails to speed-up the execution?   7M

2. Draw and explain the timing diagram for the 16-bit Memory write operation by 8086 microprocessor where the 16-bit number starts at the offset of 5001H and ends at the address 5002H in extra segment.   14M

3. Illustrate the architecture of 8255 PPI along with its features
   i)   Modes of operation
   ii) Bit Set-Reset and
   iii) Mode Set Control words   14M

4. a) Bring out the differences between SRAM and DRAM.   6M

   b) Draw and explain the architecture of 8257 DMA controller.   8M

5. a) What is an interrupt? Give the address map of interrupt vector table of 8086.   4M

   b) Give the sequence of operations of 8086 processor on handling an interrupt.   3M

   c) Explain in brief the architecture of 8253 Programmable interval timer.   7M

6. a) Draw and discuss the internal architecture of 8251 USART.   10M

   b) Discuss the serial data communication standards.   4M

7. a) List out the features of 8051 microcontroller.   4M

   b) Differentiate the following instructions of 8051 microcontroller
      (i)   AJMP and ACALL
      (ii) RET and RETI
      (iii) RR and RRC
      (iv) MOV and MOVX
      (v)   MOV and MOVC   10M

8. a) Highlight the features of ARM controller in contrast with MCS-96 and 8051 microcontroller.   6M

   b) Draw and explain the internal architecture of MCS-96 microcontroller.   8M

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III B.Tech. II Semester Supplementary Examinations December 2017
Power System Operation and Control
(Electrical and Electronics Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (**14 Marks each**)
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1. a) What are the advantages of dynamic programming approach for unit commitment problem over priority list method? Explain the dynamic programming approach to solve unit commitment problem.   6M

   b) The fuel cost of two units are given by C1=0.1P2G1+25PG1+1.6 Rs/hr C2=0.1P2G2+32 PG2+2.1 Rs/hr. If the total demand on the generators is 250MW, find the economical load distribution of the two units.   8M

2. a) Explain inequality constraints and penalty function   6M

   b) The fuel cost function in Rs/hr for two thermal plants are given by C1=0.004P2G1+9.2PG1+420 Rs/hr C2=0.002P2G2+8.5PG2+350 Rs/hr. Where PG1, PG2 are in MW. Determine the optimal scheduling of generation if the total load is 640.82 MW. Estimate value of =12Rs/MWh. The transmission power loss is given by the expression PL(pu)=0.0346P12(pu)+0.00643P22(pu).   8M

3. a) Briefly explain control area concept and control area error.   6M

   b) An isolated generator and its control have the following parameters: Generator inertia constant=5 second; Governor time constant g =0.25 seconds; Turbine time constant T =0.6 seconds; Governor speed regulation=0.05 p.u; Load damping constant B=0.8. The turbine rated output is 200 MW at 50 Hz. The load suddenly increases by 50 MW. Find the steady state frequency deviation.   8M

4. a) Derive mathematical formulation of long and short term hydrothermal scheduling.   6M

   b) Draw the block diagram of IEEE type-1 excitation model and explain its functioning   8M

5. a) Explain proportional plus integral control of single area system with neat block diagram. Derive the necessary equations   6M

   b) An area consists of two generating units rated 400 MVA and 800 MVA with speed regulations 4 % and 5% respectively on their ratings. The units are operating in parallel, sharing 700 MW. Unit 1 supplies 200 MW and unit 2 supplies 500 MW at 1.0 p.u. (50 Hz) frequency. The load now increases by 130 MW. If B=0, find the steady state frequency deviation and new generations. If B= 1.8, find the steady state frequency deviation and new generations.   8M

6. a) Draw the block diagram LFC of two area system.   6M

   b) Give the typical block diagram of two area system interconnected by a tie line .Deduce relations to determine the frequency of oscillations of tie line power and static frequency drop with assumptions made.   8M

7. a) What is series compensation? Explain the advantages   6M

   b) Explain the reason for variations of voltages in power systems and explain any one method to improve voltage profile.   8M

8. a) What is the need of deregulation?   6M

   b) What is the role of modern technology in deregulated power market?   8M

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Code: 1G468

III B.Tech. II Semester Supplementary Examinations December 2017

Computer System Architecture

(Electrical & Electronics Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks each**)

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1. a)   Explain Multiprocessors and Multicomputer in detail?   7M

    b)   Explain Error Correction codes and Error Detection Codes with examples.   7M

2. a)   List the different Logic Micro operations and Arithmetic Micro operations?   7M
         Explain its hardware implementations.

    b)   Explain Bus transfer and memory Transfer in detail.   7M

3. a)   Explain different Instruction Formats and Addressing Modes.   7M

    b)   Explain Reduced Instruction Set Computer (RISC) with detail.   7M

4. a)   Describe in details about design-control unit.   7M

    b)   Define Control Memory? Explain Micro programed Control organization.   7M

5. a)   Explain Floating point and Decimal point arithmetic operations with examples.   7M

    b)   Explain Different computer Arithmetic Operations with examples.   7M

6. a)   Explain i)Main Memory ii)Memory hierarchy iii)Axillary Memory   7M

    b)   What is Virtual Memory? What is the relation between address space and   7M
         memory spaces in Virtual Memory explain examples.

7. a)   Define Direct Memory Access (DMA)? Explain the working of DMA?   7M

    b)   Describe in detail about asynchronous data transfer?   7M

8. a)   Discuss in Detail about in Inter Processor Communications.   7M

    b)   Define Pipeline? Explain Space-Time diagram for Pipeline.   7M

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