

Hall Ticket Number :										
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<b>R-11 / R-13</b>
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**Code: 1G457**

III B.Tech. I Semester Supplementary Examinations November 2019

**Computer System Architecture**

( 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 with neat sketch the functional units of computers. 8M  
b) Explain in brief complements in data representation. 6M
- 2. a) What is the need of three state buffers? Explain 7M  
b) Draw and describe flow chart for interrupt cycle. 7M
- 3. List and explain addressing modes. 14M
- 4. a) Explain control memory with block diagram. 7M  
b) Draw the block diagram for selection of address for control memory. 7M
- 5. With an example explain step-by-step procedure for division of two fixed-point binary numbers. 14M
- 6. a) With neat sketch describe memory connection to CPU 7M  
b) How address mapping using pages in virtual memory? 7M
- 7. a) Discus about Direct Memory Access. 7M  
b) Draw block diagram of a computer with I/O Processor. Describe. 7M
- 8. a) Describe Crossbar switch interconnection structure. 7M  
b) Briefly explain the parallel processing. 7M

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<b>R-11 / R-13</b>
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**Code: 1G353**

III B.Tech. I Semester Supplementary Examinations November 2019

**Digital IC Applications**

( 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) Design a CMOS transistor circuit for a Two input XOR gate and explain the operation with the help of function table? 7M
- b) Explain about CMOS steady electrical behavior in brief. 7M
  
- 2. a) Distinguish CMOS logic and TTL logic circuits. 6M
- b) With the help of diagram explain the working of three input ECL-NOR gate. 8M
  
- 3. a) Describe the design flow of HDL with an example. 8M
- b) Describe the program structure in VHDL. 6M
  
- 4. a) Distinguish concurrent and sequential signal assignment statements with an example 7M
- b) Describe conditional and switch statements used in VHDL with an example. 7M
  
- 5. a) Write a VHDL program for 4-bit grey to binary. 6M
- b) Write a VHDL program for 3-8 decoder using case statement. 8M
  
- 6. a) Design 4-bit Barrel shifter and write a VHDL program for it. 8M
- b) What is the purpose of Wait-statement in VHDL? 6M
  
- 7. a) Design Mod-7 counter using VHDL. 8M
- b) Describe the importance of sensitivity list in a process statement. 6M
  
- 8. a) Distinguish Static and Dynamic RAM 6M
- b) Describe the READ and WRITE operations of Dynamic RAM cell. 8M

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<b>R-11 / R-13</b>
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**Code: 1G352**

III B.Tech. I Semester Supplementary Examinations November 2019

**Linear IC Applications**

( 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) Explain the need for current mirror circuit with the help of circuit diagram. 7M  
b) Discuss the DC analysis of Dual input balanced output configuration of a differential amplifier. 7M
- 2. a) Explain the block diagram representation of a typical Op-Amp. 5M  
b) Discuss the DC characteristics of an Op-Amp in detail. 9M
- 3. a) Draw and explain a differential amplifier with two Op-Amps. 7M  
b) Draw and explain the Op-Amp ideal integrator. Mention its drawbacks. How these are overcome with Lossy integrator? 7M
- 4. a) What is the difference between a normal diode rectifier and a precision rectifier? Explain with neat diagrams. 7M  
b) Design an Op-Amp Monostable multi for an output pulse duration of 1ms. 7M
- 5. a) Design an Active Notch filter to reject a frequency of 50 Hz. 8M  
b) What are the advantages and disadvantages of active filters over passive filters? Explain. 6M
- 6. a) Draw and explain the monostable operation of 555 timer. 7M  
b) Draw the block diagram of 565 PLL and explain its principle of operation. 7M
- 7. a) Explain the working principle of successive approximation ADC with a neat diagram. 7M  
b) Explain the various DAC/ADC specifications in detail. 7M
- 8. a) Draw and explain a sample and hold circuit. 7M  
b) Discuss the applications of analog switches. 7M

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