Code No: R1622054   **R16**   SET - 1

II B. Tech II Semester Regular Examinations, April - 2018
COMPUTER ORGANIZATION
(Com to CSE, IT, ECC)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**
~~~~~~

PART –A

1. a) Write various ways to improve the clock rate. (2M)

   b) With an example write about relative addressing. (2M)

   c) Differentiate post-indexed and pre-indexed addressing with write back policy. (3M)

   d) What is the use of PCI bus in a computer system? (2M)

   e) Write the major functionalities of disk controllers? (3M)

   f) Explain 3 steps a processor perform to execute instruction. (2M)

PART –B

2. a) What are the functional units of a computer system? Explain the way of handling information by each of them. (7M)

   b) Discuss the generations of computers based on the development technologies used to fabricate the processors, memories an I/O units. (7M)

3. a) Differentiate the instruction execution for adding 'n' numbers using Straight line sequencing and branching. (7M)

   b) Write short notes on shift and rotate instructions. (7M)

4. a) Differentiate relative and absolute addressing modes for branch instructions (7M)

   b) What is the format of arithmetic instruction in assembly language? Elaborate variants of OP code in it. (7M)

5. a) How to meet device characteristics and addressing objectives by USB? Explain. (7M)

   b) Explain the usage of daisy chains and priority in simultaneous interrupt handling. (7M)

6. a) Write about flash memory and read only memories. Explain their applications. (7M)

   b) Write about locality of preference, write-through protocol, copy-back protocol and early restart protocol in cache memory. (7M)

7. a) Explain the following. (4+5+5M)
      a) Single bus organization of the data path inside a processor.
      b) Micro program sequencing.
      c) Micro instructions with next address field.

Code No: R1622054   R16   SET - 2

II B. Tech II Semester Regular Examinations, April - 2018
COMPUTER ORGANIZATION
(Com to CSE, IT, ECC)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**
~~~~~~

PART –A

1. a) What is optimizing compiler?   (2M)
    b) Write short notes on additional addressing modes.   (2M)
    c) How to determine branch target address?   (2M)
    d) Write about the transfer of control between programs through interrupts.   (3M)
    e) Differentiate logical and physical addresses.   (2M)
    f) What is micro programmed control and micro routines?   (3M)

PART –B

2. a) Write about various general purpose registers involved in the typical computer   (7M)
       system
    b) "System software is responsible for coordination of all activities in a   (7M)
       computing system"-Justify this statement with the functionalities of it.

3. a) Write about various means by which data are transferred between memory of a   (7M)
       computer and outside world.
    b) Write the subroutines for parameter passing through registers.   (7M)

4. a) Write in detail, about register operands, immediate operands and shifted   (14M
       immediate operands of arithmetic and logic instructions   )

5. a) Explain typical read operation with various data transfer signals on the PCI   (7M)
       bus.
    b) Write about two different approaches for bus arbitration.   (7M)

6. a) Explain how large storage can be implemented with optical disks.   (7M)
    b) Discuss the possible methods for specifying the placement of memory blocks   (7M)
       in cache.

7. a) Explain the following.   (4M+
       a) Role of MDR in fetching a word from memory.   5M+
       b) Control sequence that implements unconditional branch   5M)
          instructions.
       c) Block diagram of a complete processor.

Code No: R1622054   **R16**   SET - 3

II B. Tech II Semester Regular Examinations, April - 2018
COMPUTER ORGANIZATION
(Com to CSE, IT, ECC)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**
~~~~~~

PART –A

1. a) Write a short note on bus structures used in computer system.   (2M)

    b) Give example for left and right shift operations.   (2M)

    c) Discuss load/store instructions for multiple operands.   (3M)

    d) What do you mean by vectored interrupts?   (2M)

    e) Differentiate static and dynamic RAMs.   (2M)

    f) Write a short notes on wide-branch addressing   (3M)

PART –B

2. a) Explain the importance of instruction set in measuring the performance of a computer system.   (7M)

    b) Discuss various computer types with their applications in real world environment.   (7M)

3. a) What is register transfer notation? Write and explain these notations to three-address, two-address, single address and zero-address instruction types.   (7M)

    b) Illustrate the concept of assembly directives with an assembly language program   (7M)

4. What are the conditional branch instructions? Explain each with an example   (14M)

5. a) What are the main phases involved in the operation of SCSI bus.   (7M)

    b) List the functionalities of I/O interface. Draw and explain a combined input/output interface circuit.   (7M)

6. a) Relate the access speed, size and cost of various memories in memory hierarchy system.   (7M)

    b) "RAID disks offers excellent performance and large &reliable storage"- Justify this statement through various levels.   (7M)

7. Explain the following.   (4M+
    a) Basic operation of micro programmed control unit.   5M+
    b) Input and output gating of ALU.   5M)
    c) Storing a word in memory.

Code No: R1622054   **R16**   SET - 4

II B. Tech II Semester Regular Examinations, April - 2018
COMPUTER ORGANIZATION
(Com to CSE, IT, ECC)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**
~~~~~~

PART –A

1. a) What is the use of pipelining and superscalar operations?   (3M)

    b) List basic input and output operations.   (2M)

    c) Write the instruction format of ARM.   (2M)

    d) What is bus arbitration?   (2M)

    e) How to encode bits using Manchester encoding?   (2M)

    f) Explain basic organization of micro programmed control unit.   (3M)

PART –B

2. a) What is the role of Processor clock, clock rate in the performance of computer   (7M)
       system? Explain.

    b) Suppose two numbers located in memory are to be added. What are the   (7M)
       functional units of digital computer system will carry out this? Explain how.

3. In how many ways the location of an operand is specified in an instruction?   (14M)
    Explain each mode with suitable examples.

4. How to perform AND, OR, NAND, NOR and XOR logic instructions? Give   (14M)
    example

5. a) Discuss the implementation of nested interrupts to handle multiple devices.   (7M)

    b) Explain the importance of handshake control for data transfer in asynchronous (7M)
       bus.

6. a) What are the possible configurations of ROM? Explain with advantages and   (7M)
       disadvantages

    b) Write about organization accessing of data on a disk? Elaborate the role of   (7M)
       operating systems and disk controllers in it.

7. Explain the following.   (5M+
    a)   Conditional branching micro program.   5M+
    b)   Vertical /horizontal organization of micro instructions.   4M)
    c)   Fetching a word from memory.