



Printed Pages: 3

EEC-402/EC-403(MTU)

(Following Paper ID and Roll No. to be filled in your  
Answer Books)

Paper ID : 131402

Roll No. 

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**B.TECH.**

**Theory Examination (Semester-IV) 2015-16**

**COMPUTER ARCHITECTURE AND ORGANISATION**

*Time : 3 Hours*

*Max. Marks : 100*

**Section-A**

**1. Attempt all parts of the following** (10×2 = 20)

- (a) What, in general terms, is the distinction between computer organization and computer architecture?
- (b) List and briefly define the four main components of a general purpose computer.
- (c) Draw the Von Neumann architecture.
- (d) Briefly define an embedded system with help of an example.
- (e) Represent  $(128.25)_{10}$  in double precision.
- (f) Define ROM, PROM, EPROM, EEPROM.

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- (g) Draw the ARM cache organization.
- (h) What are the advantages of using a glass substrate for a magnetic disk?
- (i) List the key services provided by an Operating system.
- (j) What are the four essential elements of a number in floating-point notation.

### **Section-B**

**Attempt any five Parts of the following:**

**[5×10=50]**

- (a) Explain in detail, how data is written onto and read from a magnetic disk?
- (b) List and explain the major types of Operating System scheduling.
- (c) What is RAID ? Explain the seven RAID levels in detail.
- (d) Evaluate the Hamming code for a four bit message word 1101. Also show how a single error be detected if there occurs an error in the fourth bit of the generated hamming code.
- (e) What is an operating system? Explain the different categories of Operating System. Explain the major functions of an I/O module?



- (f) Explain the difference between the programmed I/O and interrupt driven I/O.
- (g) Explain the cache memory principle using three level cache organizations.
- (h) What is the purpose of a translation lookaside buffer?
- (i) Explain DMA.

## Section-C

**Attempt any two questions.**

(2×15=30)

- 3. Explain direct mapping, associative mapping, and set associative mapping? What is the benefit of using a multiple-bus architecture compared to a single-bus architecture?
- 4. What is the difference between a process and a program? Is it necessary for all of the pages of a process to be in main memory and in sequential order?
- 5. Explain in detail:
  - (a) PCI
  - (b) ALU
  - (c) Microcontroller families