Hall Ticket No | | | | | | | | | | | Question Paper Code: BES003

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech I Semester End Examinations (Regular) - February, 2017

Regulation: IARE–R16

COMPUTER ARCHITECTURE

(Embedded Systems)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Explain the rapid changes in implementation technology that computer architecture designer should take care of. How do you evaluate the bandwidth over latency? **[6M]**
   (b) Explain quantitative principles to be followed to improve performance of computer design. **[8M]**
2. (a) Explain different addressing modes for instruction set architecture with an example and its usage. **[7M]**
   (b) List the critical goals in the instruction set architecture from compiler viewpoint and discuss how compiler technology affects the decisions of the architect and how the architect can make it hard or easy for the compiler to produce good code. **[7M]**

UNIT – II

3. (a) Explain basic compiler techniques for exposing ILP. **[7M]**
   (b) Explain how dynamic scheduling helps to overcome data hazards. **[7M]**
4. (a) Explain the assumptions made for a perfect processor and discuss the limits of instruction level parallelism. **[8M]**
   (b) Explain basic VLIW processor in detail. **[6M]**

UNIT – III

5. (a) Explain how a protection is achieved via virtual memory. **[8M]**
   (b) Explain six basic cache optimization rules. **[6M]**
6. (a) Explain the impact of virtual machines on virtual memory and input/output. **[7M]**
   (b) Distinguish distributed shared memory and directory based cache coherence protocols with diagram. **[7M]**

UNIT – IV

7. (a) Clarify the difference between faults, errors and failures explaining their properties. Explain four categories of faults according to Gray and Siewiork. **[7M]**

   (b) Explain steps to be followed in designing input/output system. **[7M]**

8. (a) Explain NetApp FAS6000 filer, a integrated input/output system. **[8M]**

   (b) What is bench marking on a storage device? Distinguish between the cross cutting issues of block servers and filers. **[6M]**

UNIT – V

9. (a) Write a short note on interconnection network media. **[7M]**

   (b) What are the practical issues faced in interconnecting networks, with an example, explain. **[7M]**

10. (a) Explain designing procedure of a cluster, with an example. **[7M]**

    (b) Illustrate the practical issues in interconnecting networks. How it will effect on a network media. **[7M]**