Reg. No. : | | | | | | | | | | | |

Q 2211

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fifth Semester

Electronics and Communication Engineering

EC 336 — COMPUTER ARCHITECTURE

(Common to Bio-Medical Engineering)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is a Turing machine?

2. What is micro programming?

3. How is overflow detected?

4. Differentiate between sequential and combinational logic circuits.

5. What is the difference between hardwired control and micro-programmed control?

6. What are micro control and nano-control memories?

7. What are virtual and cache memories?

8. Differentiate between preemptive and non-preemptive memory allocation?

9. How do deadlock problem occurs in system organization?

10. What are the causes for hardware and software redundancy?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the two types of circuits used at register level? Give example for each and compare. (4)

(ii) Explain the following register level components; Multiplexer, Encoder and Decoder, Register, and Array logic. (4 × 3 = 12)

Or

(b) With suitable examples explain in detail about instruction formats and types. (8 + 8)

12. (a) Explain the basic adders, subtractors, decimal adders. Booth algorithm. (4 × 4 = 16)

Or

(b) Write notes on the following: Fixed and Floating point representation, 2's compliment addition and subtraction, and Decimal fixed-point representation. (4 × 4 = 16)

13. (a) Explain the following: :

(i) Stay table method

(ii) Delay element method

(iii) Sequence counter method

(iv) Multiplier control unit of hardwired control (4 × 4 = 16)

Or

(b) Explain the Nano-programming, nano-data, and nano-programme control of nano-computer. (16)

14. (a) Write notes on

(i) RAM

(ii) Associative memory

(iii) Word-organized memory

(iv) Variable length data memory. (4 × 4 = 16)

Or

(b) Explain the main memory allocation with respect to the following : Preemptive allocation, Non-preemptive allocation, Replacement policies and Stack replacement policies. $(4 \times 4 = 16)$

15. (a) (i) Explain different DMA data transfer methods with an example. (10)

(ii) Define an Interrupt. Differentiate between vectored and non-vectored interrupts. (6)

Or

(b) What is a fault tolerance computer? Explain its design techniques and its reliability analysis. (16)
