

**ET503M / COMPUTER1 - Computer Architecture**

P. Pages : 2

Time : Three Hours



**GUG/S/25/13924**

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Diagrams and Chemical equation should be given wherever necessary.
  5. All question are compulsory.

1. a) Explain in brief basic functional units of computer. **8**
- b) Write short notes on- **8**
- i) Assembly language ii) Queue

**OR**

2. a) What is instruction? Explain different types of instructions. **8**
- b) Convert below given arithmetic expression into an assembly language code segment using zero address, one address and two address instructions. **8**
- $(A + B - C) * (D * E - F)$
3. a) Perform multiplication using Bit pair recording method. **8**
- i)  $(-32) * (24)$  ii)  $19 * (-12)$
- b) Explain non restoring algorithm. Also divide 12/4 using non restoring algorithm method. **8**

**OR**

4. a) Explain floating point number format and represent the following decimal numbers in floating point format. **8**
- i)  $4.62 * 10^2$  ii) 500
- iii) 0.0002450 iv)  $3.13 * 10^3$
- b) Explain advantages of bit-pair multiplication. **4**
- c) Give double precision IEEE 754 floating point format with suitable example. **4**
5. a) Draw and explain the block diagram of a micro programmed control unit. **8**
- b) How instruction can be pre-fetched? Explain with program counter. **8**

**OR**

6. a) Perform the operation using restoring integer division algorithm 8/3 (eight divide by three). 8  
b) Giving example of fixed encoded micro-instruction. Explain why grouping of control signals are required? 8

7. a) Write short notes on- 8  
i) Virtual memory ii) Standard I/O interface  
b) Differentiate between SRAM and DRAM. 8

**OR**

8. a) Write short note on DMA. 8  
b) Explain the following terms with suitable example. 8  
i) Cache Hit ii) Cache Miss  
iii) Memory Access Time iv) Average CPU Access Time

9. a) Write short note on interconnected networks. 8  
b) Explain in detail different forms of parallel processing. 8

**OR**

10. a) Write short note on Data Hazards. 8  
b) Write short note on pipeline performance. 8

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