

B.E. / B.Tech. (Electronics & Communication / Telecommunication Engineering) Model  
Curriculum Semester-V  
**ET503M - Computer Architecture**

P. Pages : 2

Time : Three Hours



**GUG/W/24/13924**

Max. Marks : 80

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- 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 questions are compulsory.

1. a) Draw and explain the single bus structure and discuss its advantages and disadvantages? **10**  
Also explain three bus structures in detail.
- b) Explain Von Neumann Architecture with neat diagram. **6**

**OR**

2. a) Explain different types of addressing modes in detail with example. **8**
- b) Write short notes on: **8**
- i) Stack
- ii) Subroutine
3. a) Explain Booth's algorithm for multiplication of two binary numbers with circuit diagram. **10**  
Multiply (23) \* (-19) using Booth's algorithm.
- b) Perform the operation using restoring integer division algorithm. 03/08. **6**

**OR**

4. a) Perform the division using Restoring Algorithm - 94/8. **8**
- b) Represent the following numbers in IEEE9754 floating point format. **8**
- i) 0.5
- ii) 1365.1.
5. a) Explain micro-programming instruction with example- **6**
- b) State and explain the attributes of vertical and horizontal instruction formats. **6**

- c) How instruction can be pre-fetched? Explain with program counter? 4

**OR**

6. a) Explain in detail with the help of diagram Hardwired control unit. 8
- b) What are the types of micro - instructions? Explain with example. 8
7. a) What is cache memory? Explain different mapping technique of cache memory with diagram by considering suitable size of memory. 10
- b) Explain ROM, PROM, EPROM & EEPROM. 6

**OR**

8. a) Write short note on direct memory access of data transfer. 5
- b) What will be the total capacity of the hard disk having 8 sectors per track, 32 tracks per surface and 20 surface where each sector can store maximum of 2KB of data? 6
- c) Write short note on storage devices. 5
9. a) Explain the loosely and tightly coupled multicomputer system. 6
- b) Draw and explain cross bar inter connection network. 7
- c) Draw and explain Flynn's classification for processor. 3

**OR**

10. a) Write a short note on array processor. 7
- b) Draw and explain single bus inter connection network. 6
- c) Explain Quad core processing. 3

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