

**B.Tech. - VIEP - ELECTRONICS AND
COMMUNICATION ENGINEERING
(BTECVI)**

00943 Term-End Examination

June, 2018

BIELE-015 : COMPUTER ARCHITECTURE

Time : 3 hours

Maximum Marks : 70

Note : *Attempt any seven questions. All questions carry equal marks. Missing data may be suitably assumed. Use of scientific calculator is permitted.*

1. Give the block diagram of the computer architecture system and briefly explain the function of each block. 4+6=10

2. Write a program to evaluate the following arithmetic expression :

$$X = (A + B) * (C + D) / (F * G).$$

(a) Use a general register computer with three address instructions.

(b) Use an accumulator type computer with one address instruction. 5+5=10

3. With the help of suitable representations and examples, list the difference between fixed-point and floating-point numbers. 10
4. What are arithmetic logic units ? Clearly explain the difference between combinational and sequential ALUs with the help of block diagram. $2+4+4=10$
5. Give the instruction format for various mathematical operations in floating-point arithmetic. 10
6. Draw and explain the memory organization chart. Clearly indicate the functions of each part. $6+4=10$
7. Define the following terms : $4 \times 2 \frac{1}{2} = 10$
- (a) Micro-operation
 - (b) Microcode
 - (c) Microinstruction
 - (d) Microprogram
8. Explain the concept of virtual memory. How is address mapping done in virtual memory ? $4+6=10$
9. Explain I/O organization and differentiate between Isolated and Memory Mapped I/O. $5+5=10$

10. Write technical notes on any *two* of the following : **2×5=10**

- (a) **Segmented Page Mapping**
 - (b) **Parallel Processing**
 - (c) **Page Replacement**
 - (d) **Multiplier Control Unit**
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