

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

Term-End Examination

June, 2017

00734

BICS-012 : MICROPROCESSORS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions. All questions carry equal marks.

1. (a) Describe the sequence of signals that occurs on the address bus, the control bus and the data bus when a simple microprocessor fetches an instruction. 6
- (b) What are the advantages of using a CPU register for temporary data storage over using a memory location ? 4
2. Answer the following questions :
 - (a) What is the main difference between 8086 and 8088 microprocessors ? 2
 - (b) What determines whether a microprocessor is considered an 8-bit or a 16-bit or a 32-bit device ? 2
 - (c) What is the purpose of the six conditional flags of the flag register in the 8086 microprocessor ? 6

3. (a) What are segment registers ? How many segment registers are there ? What are they used for ? 6
- (b) Given the following :
- (i) Start of the code segment (CS) = 348A0H
Offset value IP = 4214H 12500
What will be the physical address of the code byte ?
- (ii) Start of stack segment (SS) = 50000H
Stack pointer (SP) value = FFE0H
What will be the physical address at the tip of the segment ? 4
4. (a) Explain the following assembler directives : 5
- (i) Assume
(ii) DB
(iii) DD
(iv) DQ
(v) ORG
- (b) Explain the following addressing modes with examples and where they are used : 5
- (i) Immediate addressing mode
(ii) Indirect addressing mode
5. (a) Draw a logical organization of memory in Intel 8086 microprocessors. 5
- (b) Explain the following instructions using an example for each : 5
- (i) CBW
(ii) DAA

6. Write an assembly language program to find the smallest number and its location in an array of 50 numbers stored in the consecutive memory location starting at $XXXO_H$. 10
7. Briefly describe the condition(s) which causes 8086 to perform each of the following types of interrupts :
Type 0, Type 1, Type 2 and Type 3 10
8. Explain the operation and various modes of 8255A with the help of appropriate diagram. 10
9. (a) Explain the use of a stack pointer and a base pointer in 8086 microprocessors. 4
(b) Discuss the important features of 80386 and 80486 microprocessors. 6
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