

Jashore University of Science and Technology

Department of Computer Science and Engineering

2nd Year 2nd Semester Final Examination, 2019, Session: 2017-18

Course Title: Microprocessors and Assembly Language

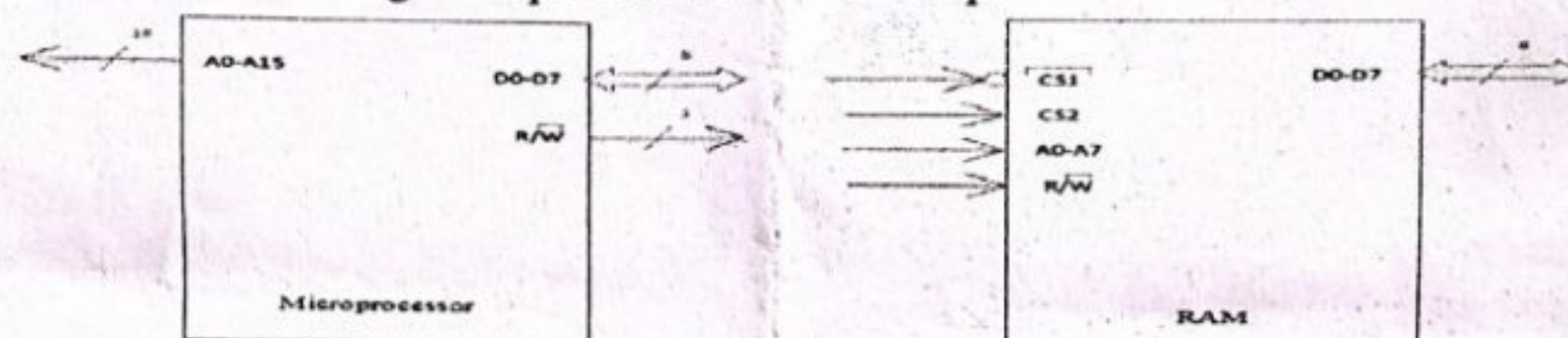
Course code: CSE 2207

Time: 3 Hours

Full marks: 72.0

(Answer any six set of questions within eight set of questions)

1. a) Determine the carry, sign, overflow and zero flags for the following operation: 4
ADD 82A1H, 231FH
b) Discuss the evolution of Intel family microprocessors. 4
c) Show the PUSH and POP operation via top in a typical microprocessor where Stack address like 500B, 500A, 5009, 5008, 5007 etc. and value F2, 05, 01, 02, F1 etc. sequentially and push and pop operation like: 4
PUSH 08,A1 where 08 and A1 data item to be pushed into stack
POP F1,02 where F1 and 02 data item to be popped from stack
Now show the Stack Pointer Value and 16 – bits register value which contains pushed-and popped values.
2. a) Distinguish standard I/O and memory-mapped I/O. 4
b) Discuss between internal and external memory fragmentation. 4
c) Assume the following microprocessor and RAM chip: 4



Draw a neat logic diagram showing connections between the above microprocessor and the RAM chip using only the signals shown to include the memory map 020016 through 02FF16. Use linear decoding.

3. a) CF, PF, AF, ZF, SF, IF, DF, OF are some flags of 8086. Write their full names and functionalities. 4
b) Write the functions of an accumulator. Suppose the contents of memory location F123h and 1234h of 8086 will be added and stored at 4AD2h. Write the assembly code for 8086. 5
c) Write an assembly language to produce packed BCD from two ASCII character. 3
4. a) Suppose we need to operate the 8086 at 15MHz internal clock frequency. Then we need an external clock generator 8284 to provide the clock input to the CLK pin of 8086. For clock signal generator the X1 and X2 pin of 8284 need to be connected to a crystal. Determine the frequency of the crystal. 3
b) Write instructions to load the hexadecimal numbers 65H in register C and 92H in the accumulator A. Display the number 65H at PORT0 and 92H at port1. 3
c) What do you mean by assembler directives? 3
d) Define coprocessor? Specify the use of coprocessor. 3
5. a) How does DMA control the I/O, R/W⁻ and memory R/W⁻ signals? Why DMA type data transfer is faster than microprocessor? 4
b) Describe the status of each field of flag register of 8086 microprocessor. 4
c) Write the comparisons between 8086 and 8088 microprocessor. 4
6. a) Draw and explain the internal block diagram of 80186 microprocessor. 5
b) What are the salient features of 80286 microprocessor? 2
c) Construct the binary code for the instructions: i) IN AL, 05H ii) MOV SP, BX 4
7. a) Write the comparisons among 80386, 80286 and 80186 microprocessor. 3
b) Show how 80386DX provides a virtual 8086 operating environment to execute the 8086 programs. 5
c) Show the signal group of 80486 microprocessor. 4
8. a) Write the difference between RISC and CISC processor. 5
b) Explain non-maskable interrupt and interrupt priority. 4
c) Shortly explain 8086 interrupt system with example. 3