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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: CS305

Course Name: MICROPROCESSORS AND MICROCONTROLLERS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1 Draw the timing diagram for the 8086 minimum mode memory write operation. (3)

2 With an example describe the register and register relative addressing mode of 8086. (3)

3 List any six features of 8088 microprocessor. (3)

4 Describe the use of 8086 instructions: PUSH, POP and PUSHF (3)

PART B

Answer any two full questions, each carries 9 marks.

5 a) With a neat diagram describe how 8086 memory is organised at physical level. (5)

b) With the help of an example show how stack can be used for passing parameters to a subroutine in assembly programs. (4)

6 a) Write an 8086 assembly program to find the largest number from a list of numbers. (9)

7 a) What are assembler directives? List any four assembler directives and its usage. (5)

b) What are the different information conveyed by the Queue status signals QS0 and QS1 of 8086 in maximum mode? (4)

PART C

Answer all questions, each carries 3 marks.

8 What are the basic categories of 8086 software interrupts? (3)

9 Describe the control word format for the BSR mode of 8255. (3)

10 What is an Interrupt Service Routine? How do we get the address of the ISR corresponding to a given interrupt in 8086? (3)

11 What are the purposes of the signals DRQ, TC and MARK in 8257? (3)

PART D

Answer any two full questions, each carries 9 marks.

12 With a neat diagram describe how 8259 can be used for handling multiple interrupts? (9)

13 With a neat diagram describe the architecture of 8255. (9)

14 a) What are the different input modes of 8279? (5)

b) Describe the sequence of steps for developing and deploying an ISR for handling interrupt in 8086. (4)

PART E

Answer any four full questions, each carries 10 marks.

15 a) Describe different types of microcontrollers. (5)

b) What are the different criteria that should be considered while selecting a microcontroller? (5)

16 a) What are the different operating modes of 8253? (6)

b) Describe any four control transfer instructions of 8051? (4)

17 a) What are the Special Purpose Registers of 8051? (4)

b) Write the structure of Program Status Word (PSW) of 8051? (3)

c) How the stack operations of 8051 differ from 8086? (3)

18 Write an 8051 program to count the number of 1s in the binary representation of a given number. (10)

19 Explain the internal memory organization of 8051. (10)

20 a) Explain any five addressing modes of 8051 with example (5)

b) What is the use of following 8051 instructions :
ADDC, SUBB, CPL, RLC and SWAP? (5)

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