Registration No: | | | | | | | | | | |

Total Number of Pages: 02 **B.Tech**
PET4I104

4th Semester Regular / Back Examination 2017-18
MICROPROCESSOR & MICROCONTROLLER
BRANCH: ECE, ETC
Time: 3 Hours
Max Marks: 100
Q.CODE:C899

Answer Question No.1 which is compulsory and any FOUR from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Q1 **Select the correct option** **(2 x 10)**

a) The 8086 has a _____architecture.
a) Scalar b) Superscalar c) Pipelined d) Dual

b) In 8086 the DS is called as _____
a)Data Segment b)Digital Segment c)Divide Segment d) Decode Segment

c) The BIU contains FIFO register of size 6 bytes called _____.
a)Registerb)Stack c) Flags d)Queue

d) In 8086 microprocessor the following has the highest priority among all type interrupts? a) NMI b) DIV 0 c) TYPE 255 d) OVER FLOW

e) To avoid loading during read operation, the device used is
a) latch b) flipflop c) buffer d) tri-state buffer

f) Which group of instructions do not affect the flags?
a) Arithmetic operations b) Logic operationsc) Data transfer operations d) Branch operations

g) All the functions of the ports of 8255 are achieved by programming the bits of an internal register called
a) data bus control b) read logic control c) control word register d) none

h) In 8279, the keyboard entries are debounced and stored in a/an _____,that is further accessed by the CPU to read the key codes.
a) 8-bit FIFO b) 8-byte FIFO c) 16 byte FIFO d) 16 bit FIFO

i) ADD A, @R_0 is an example of _____addressing mode for 8051.
a) Direct b) Immediate c) Register d) Indirect

j) When Reset, the 8051 Stack Pointer is initialized to:
a) 00H b) 7F c) 0000H d) FFFFH

Q2 **Answer the following questions:** **(2 x 10)**

a) Name two 8 bit and two 16 bit microprocessors.

b) Write instructions for 8051 to place the contents of external memory location 8000 H into accumulator.

c) Differentiate between pointers and index registers.

d) What is the dedicated operation assigned to AX and CX registers in 8086?

e) In 8086 contents of which two registers are added to form a physical address? Find the unknown value (**?**) for the following physical address:
D765:**?**=DABC0h.

f) What are the functions of the following pins of 8051 microcontroller $\overline{EA}$ and$\overline{PSEN}$?

g) Explain how to determine the operating mode of 8255? Make the control word for the ports of the Intel 8255 for mode 1 operation with the following information.
Port A: Input; Mode of port A: 1; Port B: Output; Mode of the port B: 1; Port C(lower): Input; Port C(higher): Input.

h) Define machine cycle and T state.

i) List the major components of 8257 keyboard/display interface?

j) Why are address bus unidirectional and data buses bidirectional in nature?

Part – B (Answer any four questions)

Q3 **a)** Describe the operation performed by the following instructions. Also mention the type of instruction group and the addressing mode in which each instruction falls. **(5)**

i. XCHG [DATA], AX

ii. IMUL BYTE PTR [BX + SI]

iii. NOT WORD PTR [BX+ DI]

iv. JNP 1000H

b) Discuss with proper illustrations the Architecture of 8086. **(10)**

Q4 **a)** Name the Control and Status Flags available with 8086. What are their functions and mention how can they be set or reset. **(5)**

b) Write an ALP for 8086 for arranging a set of data in ascending order. Which instruction/ instructions of your program will you change if you wish to arrange the data in descending order? **(10)**

Q5 **a)** Interface two 4K X 8 EPROMS and two 4K X 8 RAM chips with 8086 microprocessor and draw the suitable diagram showing their interfacing? **(5)**

b) Illustrate the Read and Writebus cycleof 8086 in Maximum mode. **(10)**

Q6 **a)** Draw the interfacing of a 6 digit key pad with the 8086 microprocessor. **(5)**

b) Discuss the Command words of 8279 Programmable Keyboard/ Display Controller. **(10)**

Q7 **a)** Write a BSR control word to set bits PC7 and PC0 of 8255 PPI and to reset them after 1 second delay.Include the program code for the same. **(5)**

b) Explain the various modes of operation of Intel 8255 PPI. **(10)**

Q8 **a)** Discuss the architecture of 8051 with suitable block diagram. **(5)**

b) Write a program to subtract two 16 bit numbers BB10 H and 800C H using 8051. **(10)**

Q9 **a)** Discuss about various Bit handling instructions of 8051 in detail **(10)**

b) State the Addressing Modes of the following 8051 instructions: **(5)**

i. MOV A,#6AH

ii. MOV A, 04H

iii. MOV A, R4

iv. MOV A, @R0

v. MOVC A, @A+DPTR