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JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- DEC 2017
B.Tech(ECE) V Semester

COURSE CODE: 10B11CI401
COURSE NAME: Microprocessors and Controllers
COURSE CREDITS: 4

MAX. MARKS: 35

MAX. TIME: 120min

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Questions pertaining to 8051 microcontroller are explicitly mentioned, other questions pertain to 8086.

Q.1. [5 Marks. Each question is half mark]
a) What is REP prefix? How it functions for string instructions?
b) Explain the use and operation of stack and stack pointer?
c) What is cycle stealing mode DMA? Explain.
d) List functions of Segment Address Registers.
e) Differentiate between maximum and minimum mode operation.
f) State the function of RS1 and RS0 bits in the flag register of Intel 8051 microcontroller.
g) Explain the 16-bit registers DPTR and SP of 8051.
h) Name the special functions registers available in 8051.
i) Compare Microprocessor and Microcontroller.
j) List the addressing modes of 8051?

Q.2. [5 marks] Discuss important features of different memory devices. Explain the steps in the design of a memory address decoder.

Q.3. [5 marks] It is proposed to design a temperature control system using 8051 microcontroller. Show the hardware and software interfacing of your design.

Q.4. [5 marks] List functions of 16550 communication controller and explain with an example its programming aspects.

Q.5. [5 marks] Describe the internal architecture of 8254 timer controller. Explain how it can be used as an event counter.

Q.6. [5 marks] It is proposed to use 8255PPI controller for interfacing 8 digit seven segment LED disply. Explain hardware and software interfacing.

Q.7. [5 marks] What is the need for an interrupt controller? Discuss the maskable interrupt operation using 8259 interrupt controller.