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**Question Paper Code : 71737**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Fourth/Fifth Semester

Electronics and Communication Engineering

EC 6504 – MICROPROCESSOR AND MICROCONTROLLER

(Common to Biomedical Engineering/Computer Science and Engineering/Medical Electronics Engineering/Information Technology)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. The offset address of a data is (341B)<sub>H</sub> and the data segment register value is (123A)<sub>H</sub>. What is the physical address of the data?
2. Define stack register.
3. What is meant by multiprogramming?
4. Write some example for advanced processors.
5. Draw the format of read back command register, of 8254.
6. Write a 16 bit delay program in 8086.
7. Which port used as multifunction port? List the signals.
8. Illustrate the CJNE instruction.
9. List the 8051 interrupts with its priority.
10. What are the types of sensors used for interfacing?

PART B — (5 × 13 = 65 marks)

11. (a) Draw and explain the architecture of 8086 with neat diagram.

Or

- (b) Describe the interrupts of 8086 and its types with service routine.

12. (a) Explain the system bus structure of 8086. Draw the timing diagram for interrupt acknowledgement cycle.

Or

- (b) Explain the closely looped configuration with neat diagram.

13. (a) Draw and explain the functional diagram of parallel communication interfacing chip.

Or

- (b) Explain the need of DMA controller with its functional diagram.

14. (a) Write the available special function registers in 8051. Explain each register with its format and functions.

Or

- (b) (i) Discuss the types of addressing mode with suitable example in 8051. (8)  
(ii) Write an 8051 assembly language program to multiply the given number 48H and 30H. (5)

15. (a) Write a program for generation of unipolar square waveform of 1 KHz frequency using Timer0 of 8051 in mode0. Consider the system frequency as 12MHz.

Or

- (b) Demonstrate the interfacing of the stepper motor with 8051 and explain its interfacing diagram and develop program to rotate the motor in clock wise direction.

PART C — (1 × 15 = 15 marks)

16. (a) Develop a 8086 based system to display the word HELLO for every 2ms in the common cathode seven segment LED display and check how many times the word displayed for one hour.

Or

- (b) Develop 8051 based system design having 8Kbyte RAM to generate the triangular wave using DAC.