Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 27203

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Fourth/Fifth Semester

Computer Science and Engineering

EC 6504 — MICROPROCESSOR AND MICROCONTROLLER

(Common to Information Technology and Medical Electronics/Bio Medical Engineering/Electronics and Communication Engineering)

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Calculate the physical address, when segment address is 1085 H and effective address is 4537 H.

2. Show how the 2 byte INT instruction can be applied for debugging.

3. What is multi programming?

4. Schematically show, how synchronization is made between 8086 and its co-processor.

5. List the operating modes of 8255 A and 8237 A.

6. What freq. transmit clock ($\overline{TxC}$) is required by an 8251 in order for it to transmit data at 4800 baud with a baud rate factor of 16?

7. Mention the number of register banks and their addresses in 8051.

8. What is the jump range?

9. Mention the features of serial port in mode 0.

10. How is A/D converter interfaced with 8051?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the architecture of Intel 8086 with the help of a block diagram. (8)

(ii) Briefly describe about addressing modes of 8086. (8)

Or

(b) Explain in detail about the interrupts and interrupt service routines of 8086. (16)

12. (a) With neat diagram explain the minimum mode of operation of 8086. (16)

Or

(b) Define loosely coupled system. Explain the schemes used for establishing priority. (16)

13. (a) Draw the block diagram and explain the operations of 8251 serial communication interface. (16)

Or

(b) Draw the block diagram of programmable interrupt controller and explain its operations. (16)

14. (a) (i) Explain in detail about the Special Function Registers in 8051. (8)

(ii) Briefly explain about addressing modes of 8051. (8)

Or

(b) (i) Give PSW of 8051 and describe the use of each bit in PSW. (8)

(ii) Describe the functions of the following signals in 8051.

RST, EA, PSEN and ALE. (8)

15. (a) With a neat circuit diagram explain how a 4 × 4 keypad is interfaced with 8051 microcontroller and write 8051 ALP for keypad scanning. (16)

Or

(b) Draw the schematic for interfacing a stepper motor with 8051 microcontroller and write 8051 ALP for changing speed and direction of motor. (16)

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