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**Question Paper Code : X20452**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020 AND  
APRIL/MAY 2021

Third/Fourth/Fifth Semester

Electronics and Communication Engineering

EC 6504 – MICROPROCESSOR AND MICROCONTROLLER

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

(Regulations 2013)

(Also common to PTEC 6504 – Microprocessor and Microcontroller for B.E. Part  
Time – Fourth Semester – Electronics and Communication Engineering – Third  
Semester for Computer Science and Engineering – Regulations 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is meant by modular programming ?
2. Write about the different types of interrupts supported in 8086.
3. Define machine cycle.
4. Define Bus.
5. List the advantages and disadvantages of parallel communication over serial communication.
6. What is key bouncing ?
7. How to set 8051 in idle mode ?
8. Illustrate the DJNZ instruction.
9. Mention the features of serial port in mode 0.
10. How is A/D converter interfaced with 8051 ?

**PART – B****(5×13=65 Marks)**

11. a) i) Explain the internal hardware architecture of 8086 microprocessor with neat diagrams. **(10)**  
ii) Write a short note about assembler directives. **(3)**  
(OR)
- b) Explain the various addressing modes of 8086 microprocessor with suitable examples.
12. a) Explain in detail about the system bus timing of 8086.  
(OR)
- b) Explain the following :  
i) Multiprocessor system. **(4)**  
ii) Coprocessor. **(3)**  
iii) Multiprogramming. **(3)**  
iv) Semaphore. **(3)**
13. a) i) Explain how D/A and A/D interfacing done with 8086 with an application. **(8)**  
ii) What is DMA ? Explain the DMA based data transfer using DMA controller. **(5)**  
(OR)
- b) i) Draw the block diagram of traffic light control system using 8086. **(7)**  
ii) Write the algorithm and assembly language program for traffic light control system. **(6)**
14. a) Describe the architecture of 8051 with neat diagram.  
(OR)
- b) Discuss the ports and its circuits of 8051.
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.  
(OR)
- b) Draw the schematic for interfacing a stepper motor with 8051 microcontroller and write 8051 ALP for changing speed and direction of motor.

**PART – C****(1×15=15 Marks)**

16. a) Develop a 8086 based system with 128 RAM and 4K ROM, to display the word HAPPY for every 2 ms in the common anode seven segment LED display. Explain the delay timings. **(15)**  
(OR)
- b) Design a circuit to generate 12 MHz frequency for a system. Write a program for generation of unipolar square waveform of 1 KHz frequency using Timer 0 of 8051 in mode 0. **(15)**
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