

B.E. Instrumentation Engineering Sixth Semester
IN604 - Microcontroller and Its Applications

P. Pages : 2

Time : Three Hours



GUG/W/18/1710

Max. Marks :80

- Notes :
1. Same answer book must be used for each question.
 2. All questions carry marks as indicated.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Choose suitable micro controller for each following feature. 8
i) Speed of 20-30 MHz. ii) Internal 32 K EPROM
iii) 256 on chip RAM. iv) On chip 8 channel ADC.
- b) Justify the use of 8051 to develop a product based Embedded system. 8

OR

2. a) Draw and label the internal architectural diagram of 8051. 8
b) Suggest the two instruction for each addressing mode in data transfer group of instruction with its operational meaning. 8
3. a) Choose 8051 instruction to copy the content of external memory location to internal memory location. 6
b) Signify the bit addressable facility of 8051 with suitable example. 6
c) State use B register in arithmetic instruction of 8051. 4

OR

4. a) Develop the algorithm to arrange the 10 numbers in descending order. 10
b) Draw the timing diagram associated signal or operation accessing external memory. 6
5. a) Identify the changes in SP after execution of PUSH & POP instruction. Give two example where such operation is necessary. 8
b) Distinguish operational difference betⁿ. SJMP, LJMP, AJMP with suitable example. 8

OR

6. a) State the function of assembler and assembler directive. 6
b) Draw the Hardware diagram of operation of 4 modes of timers. 6
c) Identify the role of each bit of TMOD register. 4
7. a) Design the interfacing circuit for LCD Display. 8

- b) If 8 LEDs are interface to port 3 of 8051, then write program to display one by one LED sequentially. Assume common anode configuration for LED interface. **8**

OR

- 8.** a) Develop a program to generate square wave of 10 KHz. Assume XTAL = 20 MHz using serial output. **10**
- b) What are the default priority of interrupts in 8051. **6**
- 9.** a) Design interfacing of 8051 with temp sensor to store the value of temp read through ADC. **8**
- b) What are the features of PIC micro controller. **8**

OR

- 10.** a) Justify use of logical instruction in bit set reset operation of interfacing ckt. **8**
- b) State operational memory of IP register and IE register. **8**
