Roll No. ....

6th Sem / Branch : Electrical, Eltx., Mechatronic, GE, Power Station Engg. Elect & Eltx Engg.
Sub. : Programmable Logic controller & Microcontroller
Mic. Cont. & PLCS

Time : 3Hrs.   M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory   (10x1=10)

Q.1   What are the components that make the programmable logic controller work?
   a)   Input and output module
   b)   CPU
   c)   Power supply
   d)   All of the above

Q.2   In PLC the use can write the programs with the help of_____.
   a)   Optical isolation
   b)   Sensing devices
   c)   Programming devices
   d)   None of the above

Q.3   A stack is used for _____
   a)   Storing of data in memory
   b)   Location of instruction in the memory
   c)   Address of next instruction to be executed
   d)   None of the aboe

Q.4   Which addressing mode is used in instruction LDA 2500 H?
   a)   Indirect   b)   Direct
   c)   Register   d)   Implicit

Q.5   The internal RAM memory of the 8051 is:
   a)   32 bytes   b)   64 bytes
   c)   128 bytes   d)   256 bytes

Q.6   Which of the following interrupts has the lowest priority?
   a)   RST 5.5   b)   TRAP
   c)   RST 7.5   d)   INTR

Q.7   What is the number of I/O ports in the 8051 microconrollers?
   a)   2 ports   b)   3 ports
   c)   4 ports   d)   6 ports

Q.8   What is the function of the SCON register?
   a)   To control SBUF and SMOD registers
   b)   To control SMOD registers
   c)   To program the start bit, stop bit, and data bits of framing
   d)   None of the above

Q.9   Which of the following is not a type of microcontroller interrupt?
   a)   INTR   b)   INTO
   c)   INT1   d)   TFO

Q.10 The 8255 is a _____ chip
  a) Input/output   b) Analog to Digital
  c) Digital to analog d) None of the above

SECTION-B

Note: Objective type questions. All questions are compulsory.   (10x1=10)
Q.11 What is control bus?
Q.12 What is the purpose of DR directive?
Q.13 Explain the process of debugger.
Q.14 What is stack pointer?
Q.15 Name any two programming language used in PLC programming.
Q.16 What is the function of program counter?
Q.17 How many ports are used in 8051 microcontollers?
Q.18 What is the meaning of Mnemonic : MOV Rn, A?
Q.19 What is the full form RTO?
Q.20 Draw the symbol of CTU.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.   (12x5=60)
Q.21 Draw the basic block diagram of PLC and explain it.
Q.22 Write short note on need of PLCs.
Q.23 Define interrupt. Differentiate between Maskable and non-maskable in interrupt.
Q.24 Explain working of Assembly line operating using PLCs programming language.
Q.25 Discuss briefly the concept of pipelining.

Q.26 Define PSW. List the number of flags in 8051 microcontroller and name them.
Q.27 Give at least five applications of microcontroller.
Q.28 Discuss the arithmetic group instructions of PLCs with example.
Q.29 Compare the CALL and JMP instructions.
Q.30 Discuss the role of TCON & TMOD registers in microcontrollers.
Q.31 Explain in detail the pin diagram of 8051.
Q.32 What are the advantages of PIC microcontroller?
Q.33 What are the elements of assembler?
Q.34 What are the drawbacks of hard-wired logic control circuits?
Q.35 Explain the interfacing of LCD with mircocontroller 8051.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions.   (2x10=20)
Q.36 Draw and explain the basic functioning of a PLC system. Also give advantages of PLC system over traditional relay systems.
Q.37 Draw and explain the architectures the 8051 Microcontroller. What are the advantages and applications of microcontroller?
Q.38 Write a short note on any two of the following:
  a) Programming devices
  b) POP instruction
  c) Interfacing keyboard with microcontroller.