5/12/2024 ELECTRICAL SEM-VI C SCHEME MICROCONTROLLER APPL. QP CODE: 10054688

**Duration – 3 Hours** **Total Marks- 80**

Note:- (1) Question No.1 is compulsory.
(2) Attempt any three questions out of the remaining five questions.
(3) Assume suitable data if necessary and justify the same.

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| **Q 1.** | Answer the following questions. (Any four) | **20M** |
| **a)** | Differentiate between Microprocessor and Microcontroller. | **5M** |
| **b)** | Explain status register and Bank select register of PIC 18 Microcontroller. | **5M** |
| **c)** | Differentiate between serial and parallel communication. | **5M** |
| **d)** | Write a short note on Assembler directives. | **5M** |
| **e)** | Explain Instruction pipelining in PIC 18 Microcontroller. | **5M** |
| **Q 2 a)** | Classify the different interrupting sources of pic18 microcontroller and hence explain the simplified vectored interrupt process with GIE and PEIE. | **10M** |
| **Q 2 b)** | What is stack and subroutine? Explain the instructions associated with stack & subroutine. | **10M** |
| **Q 3 a)** | What is mean by addressing modes? Explain the different addressing modes used in Pic18 microcontroller. | **10M** |
| **Q 3 b)** | Write a C18 program using Timer 0 to generate square wave of 2500 Hz frequency on all pins of PORTC. Use 16-bit programming technique with no prescaler, The internal frequency of micro controller is 10MHz. | **10M** |
| **Q 4 a)** | Explain the SPBRG, TXSTA and RCSTA registers used in serial communication. | **10M** |
| **Q 4 b)** | A switch is connected to pin RD7(PORTD.7). Write a C program to monitor the status of the switch and perform the following: (Draw the diagram) a) If the SW=0 (Open), Stepper motor moves Clockwise. b) If the SW=1 (Closed), Stepper motor moves Anticlockwise. | **10M** |
| **Q 5 a)** | Explain the Capture, Compare and PWM module (CCPx) of Pic18 microcontroller. . | **10M** |
| **Q 5 b)** | Explain the Analog to digital (ADC) module along with the control registers associated with it used in PIC18 microcontroller. | **10M** |
| **Q 6** | Write a short note on | |
| | a) LCD interfacing with PIC18 Microcontroller. | **10M** |
| | b) DC motor interfacing with PIC18 Microcontroller. | **10M** |