

22537

24225

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

-
- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : 10
- a) List different types of buses with examples.
 - b) State the function of following pins in LCD
 - i) RS
 - ii) R/\overline{W}
 - c) Define stack memory and state default location address in RAM.
 - d) Draw format of PCON and state use of SMOD bit in the same.
 - e) Identify the pin of 8051 μ c to select external memory.
State function of \overline{PSEN} pin.
 - f) Calculate no of address lines to interface 16KB RAM and 8 KB ROM.
 - g) State the excitation code sequence to rotate stepper motor (with four windings) in clockwise direction.

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- a) Sketch interfacing diagram of DAC 0808 with 8051 μ c and write an ALP to generate triangular wave.
 - b) State alternate function of port 3.
 - c) State interrupts of 8051 microcontroller with vector address table and priority program in assembly language.
 - d) Interface ADC 0808 with 8051 and write to convert analog I/P at channel 3 to digital output at port PO.
- 3. Attempt any THREE of the following :** **12**
- a) Compare microprocessor and microcontroller (Any four points)
 - b) List any four addressing modes with suitable examples.
 - c) Draw format of TMOD register and describe in detail.
 - d) Sketch internal structure of port 1 pin of 8051 microcontroller. Describe its operation.
- 4. Attempt any THREE of the following :** **12**
- a) Write ALP to rotate a stepper motor continuously in clockwise direction.
 - b) Compare 8031, 8051, 8751 and 8752 microcontroller. (Any four points)
 - c) Develop an ALP to ON a relay connected at P 2.3 pin, when key at P1.0 is pressed. Draw interfacing diagram.
 - d) Develop an ALP to generate square wave on P2.0 pin of 8051 μ c with 1 KHz. Assume 12 MHz clock frequency.
 - e) Calculate THo and TLo value for 1 msec delay. ($f_{osc} = 12 \text{ MHz}$)

5. Attempt any TWO of the following :**12**

- a) Compare Harward and Vonneuman Architectures.
(Any four points)
- b) Explain following instructions with suitable examples.
 - i) `MOVC A @A+DPTR`
 - ii) `CJNE A, #25h, NEXT`
 - iii) `DJNZ R4, AGAIN`
- c) Draw interfacing diagram of one digit 7-seg display with 8051 and write an ALP to display 0 to 9 continuously.

6. Attempt any TWO of the following :**12**

- a) Draw interfacing diagram of temperature controller using LM35 and ADC0808. Write ALP to read temp.
 - b) Develop an ALP to transmit 'YES' on TXD line of 8051 (fosc = 11.0592 MHz) with 9600 baud rate.
 - c) List any three assembler directives with suitable examples.
-