

- N.B.**(1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** questions from **remaining**.  
 (3) Assume **suitable** address and data if **necessary**.
1. (a) Can we utilise last memory location i.e. FFF F H as stack memory ? Justify your answer. **20**  
 (b) Write Initializing Instructions to enable all the interrupts of 8085.  
 (c) Write a program to read the status of the switch connected at SID pin at 8085 and transfer this status on SOD pin continuously.  
 (d) Explain the Demultiplexing Bus in 8085.
  2. (a) Explain the following Instructions with proper format. **10**  
 (i) STAX (ii) LDAX (iii) OUT (iv) DAD  
 (b) Draw the timing diagram for INR M Instructions and explain all the memory cycles utilized for this Instructions. **10**
  3. (a) Write a program for BCD counter to count from 00 to 55 continuously with a delay subroutine of 0.5 sec. Assume seven segment display is connected at PA of 8255 with BCD to seven segment display driver. **10**  
 (b) Explain the list of events occur if interrupt comes on INTR pin. How the vector address is generated ? **10**
  4. (a) Explain Handshake Input mode of 8255 with relevant timing diagram. How to set INTE bit in 8255 so that INTR will be generated for port A used in Input handshake mode. **10**  
 (b) Differentiate between I/o mapped I/o and memory Mapped I/o Interfacing. **10**
  5. (a) Explain Initializing Sequence to generate square wave of 1 KHz using counter 1 of 8253 IC. Assume Input frequency is 1 MHz and address of control Register is 83H. **10**  
 (b) A short negative going pulse need to be generated after every 500  $\mu$  sec using Timer Section of 8155. Assume input frequency to timer is 1 MHz and address of control Register is 60 H. Write program and explain. **10**
  6. (a) In the following program, when microprocessor is executing the instruction at location 0151 H it is interrupted by TRAP signal. Answer the following questions. : **10**

START :	0100 H	LXISP C 400 H
	0103	EI
	0104	LXIB 1722
	—	—
	—	—
	0120	Call 0150 H
	—	—
SUB :	0150	PUSH B
	0151	LXIB 1317
	0154	MOV C, A
	—	—
	—	—
	015f	Re+

    - (i) Specify content of stack location C3FF and C3FE.
    - (ii) Specify stack locations where the content of B and C are stored.
    - (iii) When the program is interrupted, what is the memory address stored on stack ?
    - (iv) Content of stack pointer when ISR start executing.
  - (b) Explain the function of following pins in case of DMA controller 8237 **10**

(i) $A_3 - A_0$	Address lines	(iv) $\overline{EOP}$
(ii) $A_7 - A_4$	Address lines	(v) DREQ
(iii) HRQ		
  7. (a) Interface the following peripherals to 8085 operating at 3.07 MHz. **15**
    - (i) 32 K bytes of EPROM using 32 K  $\times$  4 memory chip.
    - (ii) 32 K Bytes of RAM using 16 K  $\times$  8 memory chip.
    - (iii) Three 16 bit timers using IC 8253. Use Absolute Decoding Technique.
  - (b) Explain the Interrupt Sequence for PIC 8259, after peripheral has requested on Interrupt pin  $IR_0$ . **5**