

- N.B.: 1) Question No. 1 is compulsory.
 2) Out of remaining questions, attempt any four questions.
 3) In all five questions to be attempted.
 4) All questions carry equal marks.
 5) Answer to each new question to be started on a fresh page.
 6) Figures in brackets on the right hand side indicate full marks.

Q1. A) Explain generation of control signals for 8085 microprocessor (5)

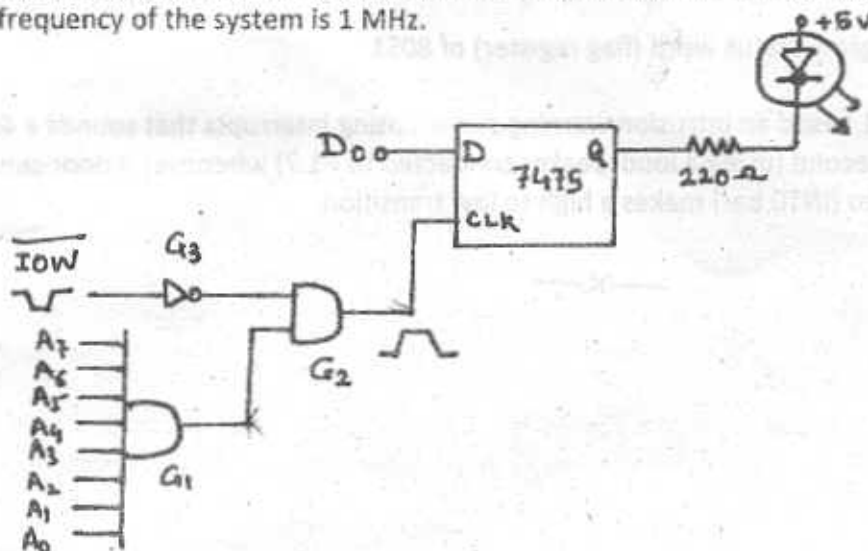
B) Show interfacing of an 8-key keyboard to the 8085 in I/O mapped I/O mode. Also write program to check and store key pressed (Use tristate buffer) (3+2)

C) Write instruction sequence in 8051 to reverse the bits in the accumulator. Bit 7 and bit 0 are swapped, bit 6 and bit 1 are swapped, etc. (5)

D) Explain following assembler directives of ASM51

1. DBIT 2. DS 3. Exrn 4. Public 5. ORG (5)

Q2. A) The LED of fig. shown below is to be made ON and OFF continuously. It should be ON for one second and OFF for 1.5 seconds. Write a program in 8085 for this purpose. The clock frequency of the system is 1 MHz. (10)



B) Explain interrupt structure of 8085 and interrupt related instructions. (6+4)

- Q3. A) Write a program in 8085 to generate a square wave of 100 Hz frequency on the SOD pin.
Assume 1 MHz operating frequency (10)
- B) Explain block diagram of 8155 with control word format and data transfer between 8085 and 8155 in handshaking mode (10)
- Q4. A) Explain block diagram of 8255 with BSR and I/O modes to interface it with 8085 (10)
- B) Explain timing diagram of Memory read/write and I/O read/write cycles of 8085 (10)
- Q5. A) Explain how 8051 interrupt structure allows single step execution also explain implementation of single step operation (10)
- B) Explain following pins of 8051
1. ALE/PROG 2. EA/Vpp 3. PSEN 4. RST 5. XTAL1 and XTAL2 (10)
- Q6. A) Explain addressing modes of 8051 with examples (10)
- B) Explain different Timer modes of operations for 8051 (10)
- Q7. A) Explain register architecture of ARM processor (05)
- B) Explain program status word (flag register) of 8051 (05)
- C) Design 8031 based an intrusion warning system using interrupts that sounds a 400 Hz tone for 1 second (using a loudspeaker connected to P1.7) whenever a door sensor connected to (INT0 bar) makes a high to low transition. (10)