

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1. a)** Develop a short sequence of instructions to copy the contents of byte-sized memory BLOCKA into byte-sized memory BLOCKB until 00H is moved. The size of BLOCKA is 200H. Write proper comments in the program. [2+0.5][CO-2]
- b)** Write a short sequence of instructions that divides the number in BL by the number in CL and then multiplies the result by 2. The final answer must be a 16-bit number stored in the DX register. Write proper comments in the program. [2+0.5][CO-2]

Q2. Design the circuit to interface 8086 microprocessor with following memory and decoder specifications: [3+4][CO-3]

- (i) Single 2K X 8, 2716 EPROM and NAND decoder with starting address DF800H. Calculate the ending address for this EPROM also.
- (ii) Eight 8K X 8, 2764 EPROMs and 3-to-8 line decoder for address range 70000H-7FFFFH. Calculate the address range for individual eight EPROMs.

Q3 Design the circuit to interface seven segment display shown in Fig. 1 with 8086 microprocessor where single LED is connected at each segment of 7-segment display. Consider common cathode type connection in which a single segment of 7-segment display will glow by sending '1' on that segment LED. Write the assembly language program which display letters 'H', 'E', 'L', 'L', 'O' with some delay in between each letter. Assume 7-segment is connected at Port-A of 8255 PPI. Mention the CWR value for this interfacing. [7][CO-2][CO-3]

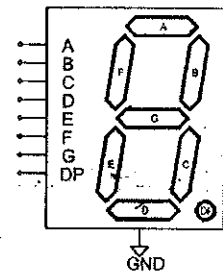


Fig. 1

Q4. a) Interface 8255 PPI with 8086 microprocessor for following specifications: [3][CO-3]

- (i) Port-A Address=00H, Port-B Address=01H, Port-C Address=02H, CWR Address=03H.
- (ii) Port-A Address=FCH, Port-B Address=FDH, Port-C Address=FEH, CWR Address=FFH.

b) Write an assembly language program using INT 21H that input numbers like 10,11,12,...99. [3][CO2][CO4]

Q5. a) What is DMA operation and which pins of microprocessor are employed for DMA operation? Give block diagram of DMA Controller and how DMA and interrupt breakpoints are different in instruction cycle? [4][CO-4]

b) What are additional features and architectural addition in Intel Pentium and Core 2 processors in comparison to 8086 microprocessor? Elaborate. [3][CO5]

c) What is arithmetic co-processor and what is its different operation? Mention the names of different arithmetic-coprocessor along with its compatibility with microprocessor. [2][CO-5]