# BE Semester-V (<u>Biomedical Engineering</u>) Question Bank

## (BM-501 Microprocessor & Its Interfacing Techniques)

**All questions carry equal marks (10 marks)**

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| Q.1 | Draw the functional block diagram of 8085 microprocessor & explain each block in detail. |
| Q.2 | Draw 8085 hardware model & programming model with bus structure & also explain data bus, address bus & control bus. |
| Q.3 | Explain the Functions of the following pins of Microprocessor 8085 : 1) ALE 2) S0, S1 3) INTR, $\overline{INTA}$ 4) SID, SOD  5) READY |
| Q.4 | What is multiplexing? How it is done in microprocessor 8085 for address and data bus? Explain with neat diagram. |
| Q.5 | With neat diagram explain the bus structure of 8085 microprocessor in detail. |
| Q.6 | What is Stack and Stack pointer register? Explain the working and use of stack in subroutine program. |
| Q.7 | Explain the different addressing modes available in 8085 assembly language programming with example. |
| Q.8 | Compare memory mapped I/O with I/O mapped I/O. |
| Q.9 | Draw the diagram for interfacing 4KB of ROM and 16KB of RAM with microprocessor 8085 and also explain the number of pins used for such interfacing. |
| Q.10 | Draw the diagram for interfacing 8KB of ROM and 8KB of RAM with microprocessor 8085 and also explain the number of pins used for such interfacing. The starting address for ROM should be 0000H and starting address for RAM should be 8000H. |
| Q.11 | Explain data transfer group of instructions with example. |
| Q.12 | Explain Arithmetic group of instructions with example. |
| Q.13 | Explain logical group of instructions with example. |
| Q.14 | Explain branching group of instructions with example. |
| Q.15 | Explain opcode fetch machine cycle with timing diagram. |
| Q.16 | Explain demultiplexing of bus AD0-AD7 with neat diagram. |
| Q.17 | Explain ALU, program counter & flag register with bit significance. |
| Q.18 | Draw & explain the timing diagram for execution of the instruction MVI A,55H. |
| Q.19 | Draw & explain the timing diagram for memory read & memory write cycle. |
| Q.20 | Draw & explain the timing diagram for execution of instruction OUT 11H. |
| Q.21 | Draw & explain the timing diagram for execution of instruction IN 22H. |
| Q.22 | Draw & explain the timing diagram for execution of instruction STA 5000H. |
| Q.23 | Draw & explain the timing diagram for execution of instruction LDA 3000H. |
| Q.24 | Explain the different addressing modes available in 8085 assembly language programming with example. |
| Q.25 | What is interrupt? List and explain the interrupt available in microprocessor 8085? |
| Q.26 | Write and ALP to add two 16 bit numbers Assume that the answer does not generate carry. |
| Q.27 | What is a program format? Illustrate with an example. |
| Q.28 | What is a subroutine? Write an assembly language  program to obtain a time delay using three registers in nested loop. |
| Q.29 | What are the vectored interrupts? Distinguish between the hardware & software interrupts. |

| Q.30 | Write an 8085 program to copy block of ten numbers starting from location 2050h to locations starting from 3050h. |
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| Q.31 | Write and ALP to design a delay of 500 ms. Make necessary assumptions and write the assumptions clearly. |
| Q.32 | What is conditional & unconditional branching? Illustrate the answer with an example. |
| Q.33 | Write an assembly language program to convert 2 digit BCD number to Binary. Make suitable assumptions if needed. |
| Q.34 | Write an assembly language program to convert a binary digit (0 to F) into ASCII Hex code. Make suitable assumptions if needed. |
| Q.35 | What is D to A conversion? Draw & explain the interfacing of 8-bit D/A Convertor with 8085. |
| Q.36 | Explain the functioning of successive approximation A/D convertor with neat diagram. |
| Q.37 | Draw the internal block diagram of 8155 & explain control signals & each block in detail. |
| Q.38 | Explain control word format of 8155 with bit significance. |
| Q.39 | Draw the internal block diagram of 8255A and explain the functions of each block in detail. |
| Q.40 | Give the control word format with bit significance for 8255A & explain various operating modes of 8255A. |