

TH-3: Microprocessor & Microcontroller (4th Sem E&TC)

Ch-1: Q-1) Define different types of Buses in 8085 Microprocessor.

Q-2) Describe the basic architecture of intel 8085 μ P with diagram.

Q-3) Draw the pin diagram of 8085 microprocessor and explain the function of each pin.

Q-4) Write down the difference between SPR and GPR.

Q-5) Discuss the register organization of Intel 8085 μ P.

Q-6) State and explain stack, stack pointer and stack top.

Q-7) i) Name the different interrupts available in 8085 μ P and identify which are maskable & which are not maskable.
ii) What is vectored & non-vectored interrupts.

Ch-2: Q-1) Explain 1-byte, 2-byte and 3-byte instructions of 8085 with example.

Q-2) What is addressing modes? Describe about different types of addressing modes of 8085.

Q-3) State the function of the following instructions:

i) LDA 16 bit address ii) SHLD 2000H iii) XCHG iv) PUSH & POP

v) MVI M, 08H vi) DCR C vii) AND B viii) CMA

Q-4) Write an ALP to find the Largest number in an array of 8-bit data using 8085 μ P instruction.

Q-5) Write a program for addition of two 8-bit numbers and sum is 16-bit using 8085 instruction.

Q-6) Distinguish between memory mapping and I/O mapping with their applications.

Ch-3: Q-1) Define opcode, operand, T-state, Fetch cycle, Machine cycle, instruction cycle.

Q-2) Draw the timing diagram for the instruction MOV B, A instruction of 8085 microprocessor.

Q-3) Draw the timing diagram of memory read / memory write opcode fetch machine cycle. or I/O read / I/O write MC.

Q-4) Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction).

Ch-4 ⇒ Q-1) Write short notes on RAM and secondary memory.

Q-2) Design a memory chip of 4K byte memory and specify its address range in main memory.

Q-3) Draw the functional block diagram of Intel 8255 and explain the function of each block.

Q-4) Draw the interfacing diagram of a general purpose light using 8255 PPI with 8085 µp.

Q-5) Design an interface for stepper motor control using 8255.

Q-6) Draw the functional block diagram of Intel 8251 USART & explain each block.

Ch-5 ⇒ Q-1) Discuss the register organisation of Intel 8086 µp.

Q-2) Draw the internal architecture of 8086 µp & explain each block.

Q-3) Discuss the different addressing modes used in 8086 microprocessor.

Q-4) Write down the different interrupts used in 8086 µp and also explain with suitable examples.

Ch-6 ⇒ Q-1) Write the difference betⁿ microprocessor & microcontroller.

Q-2) Draw and explain the internal architecture of 8051 microcontroller.

Q-3) Draw the internal memory organisation of ROM and RAM structure.

Q-4) Explain the different addressing modes of 8051 microcontroller.

Important Long Questions ⇒

Ch-1 ⇒ Q-1) Explain the working principle of diode and its current equation.

Q-2) Construct and explain the working of zener breakdown and its $v-i$ characteristics.

Q-3) With neat circuit diagram and waveform, explain the working principle of a full-wave bridge rectifier? What is the efficiency and ripple factor of a full-wave rectifier?

Q-4) Explain the working principle of n-p-n and p-n-p transistor.

Q-5) Establish the mathematical relationship between α , β & γ .

Q-6) ~~Explain~~ With neat sketch explain working of RC coupled amplifier with frequency response curve.

Ch-2 ⇒ Q-1) With neat diagram describe the working principle of class-A or class AB or class-C power amplifier.

Q-2) Describe the working principle and advantages of class-B push pull amplifier.

Ch-3 ⇒ Q-1) Write the difference between BJT & FET.

Q-2) Describe the construction, working principle & characteristics of JFET.

Q-3) Explain how JFET act as an amplifier?

Q-4) Explain the construction and working principle of MOSFET.

Q-5) Explain the operation of CMOS, VMOS & LDMOS.

Ch-4 ⇒ Q-1) Derive the expression for voltage gain of negative feedback transistor amplifier.

Q-2) Explain different types of negative feedback amplifier (voltage shunt, voltage series, current shunt & current series) with diagram.

Q-3) Draw the ckt diagram of voltage series feedback amplifier & derive the closed loop voltage gain, bandwidth, input & output resistance.

Q-4) Explain the principle of operation of RC phase shift ^{or Hartley Osc.} or LC oscillator or Wien Bridge oscillator, with neat ckt diagram. Also draw its frequency response curve.

Ch-5: Q-1) Derive the expression of resonant frequency of parallel resonant circuit with its frequency response curve.

Q-2) Explain the working principle of single tuned voltage & double tuned amplifier & its limitation.

Q-3) Describe the operating of different types of clipping and clamping circuit with proper diagram.

Q-4) Explain the working of Astable, Monostable and Bistable multivibrators with circuit diagram.

Q-5) Describe working & use of integrator and differentiator circuit using R-C circuit with input & out waveforms & freq response.

Ch-6: Q-1) With proper diagram explain Differential amplifier and its significance.

Q-2) Describe the general circuit of simple op-amp.

Q-3) Draw and explain the open loop configurations (inverting and non-inverting opamp).

Q-4) Draw the ckt diagram of voltage series feedback amp. using opamp and also derive the closed loop voltage gain, i/p & o/p resistance.

Q-5) Draw the ckt diag. of voltage shunt feedback amplifier & derive its closed loop voltage gain, Bandwidth, i/p & o/p resistance.

Ch-7 ⇒

- Q-1) Discuss the summing, scaling and averaging of inverting and non-inverting amplifier using op-amp.
- Q-2) Define Integrator and differentiator ckt using op-amp.
- Q-3) Design a first order low pass Butterworth Filter using op-amp.
- Q-4) Explain the operation of IC 555 timer or IC 565 PLL with neat block diagram and write it's application.
- Q-5) Describe the operation of power supply using 78XX and 79XX, LM317 series with their PIN configuration.
- Q-6) Describe the working of IC regulator LM723 with neat diagram.