B.Sc- ELECTRONICS-SYLLABUS

SEMESTER: V

PAPER 5 - MICROPROCESSORS (INTEL 8085) (60 OURS) (w. e. f. -2017-18)

Work load:60 hrs per semester **4 hrs/week**

UNIT- I (12 hrs)

ARCHITECTURE OF 8085 MICROPROCESSOR

Functional block diagram of Intel 8085-Register structure-multiplexing&Demultiplexing of address / data bus - Control Signal Generation and status signals - 8085 pin-out diagram & functions - Interrupts - Priority Concept

INSTRUCTION SET OF 8085 -Instruction set classification - addressing modes

UNIT - II (12 hrs)

MEMORY-Instruction cycle - machine cycle - T-state -Timing diagrams for Opcode FetchCycle Memory Read, Memory Write, I/O Read, I/O Write, - Functional explanation for RAM, ROM, EPROM, EEPROM.

UNIT- III (12 hrs)

PROGRAMMING 8085- addition & subtraction(16-bit), multiplication, division, largest,smallest, block data transfer (all 8-bit data), Binary to BCD, BCD to Binary, Binary to ASCII, ASCII to Binary, BCD to ASCII, ASCII to BCD (all 8-bit data) - Stack & Subroutines Concept - time delay using single and double register & calculations – Debugging program.

UNIT- IV (12 hrs)

INTERFACING MEMORY - 2K X 8, 4K X 8 ROM, RAM to 8085, Interfacing an I/O portin Memory Mapped I/O and I/O Mapped I/O - Difference between I/O mapped and Memory Mapped I/O.

UNIT - V (12 hrs)

MICROPROCESSOR APPLICATIONS - Programmable peripheral devices (8255,8253)-Pin functions, Different Modes & Block Diagram - Keyboard and Display Interface 8279 (Architecture) - Simple temperature controller- Simple traffic light controller-stepper motor control interface.

TEXTBOOKS

1. Ramesh S. Gaonakar, Microprocessor Architecture, Programming and Application with the8085-PenramLnternational Publishing, Mumbai.
2. Ram, Fundamentals of microprocessors and microcomputers - Dhanpat Rai Publications, New Delhi
3. Microprocessors & Microcontrollers by N .Senthilkumar, M. Saravanan& S. Jeevananthan, 1st edition, Oxford press(Helpful for interfacing applications)
4. Microprocessors & Microcontrollers by B.P.Singh, Galgotia publications Pvt.Ltd.

REFERENCE BOOKS

1. Mathur A.P., Introduction to Microprocessors. (3rd edn., Tata McGraw, New Delhi,
2. Leventhal L.A., Microprocessor Organisation and Architecture, Prentice Hall India.
3. Microprocessor lab premier by K.A.Krishnamurthy

ELECTRONICS LAB -5
(MICROPROCESSORS LAB)

Work load: 30 hrs per semester **2 hrs/week**

(Any six experiments should be done)

Programs using Intel 8085

1. Addition & Subtraction (8 & 16-bits)
2. Multiplication & Division (8 - bit)
3. Largest & Smallest number in the given array.
4. Ascending & Descending order.
5. Binary to ASCll& ASCII to Binary, BCD to ASCII & ASCII to BCD.
6. Block Transfer of Data.
7. Waveform generation using DAC interface.
8. Stepper motor interface.

LAB MANUAL

1. Zbar, Malvino and Miller, Basic Electronics, A Text Lab Manual, Tata McGraw Hill.
2. Sugaraj Samuel R., Horsley Solomon, B.E.S. Practicals.
3. Vijayendran V., Fundamentals ofmicroprocessor-8085, S.Viswanathan publishers Chennai.

B.Sc- ELECTRONICS-SYLLABUS
SEMESTER: V
ELECTIVE-PAPER 6 (A) - ELECTRONIC COMMUNICATIONS (60 HOURS)

(w. e .f. -2017-18)

Work load: 60 hrs per semester **4 hrs/week**

UNIT- I (12 hrs)

BASICS OF COMMUNICATION SYSTEMS AND NOISE

Block diagram of communication system. Types of Electronic Communication systems: Simplex, Duplex. Analog /Digital Signals. Noise in communication: External noise- Atmospheric, space noise, man-made noise, internal noise- Thermal, Shot noise Definitions and relationship between Bit rate, Band rate, Bandwidth and signal to Noise Ratio.

UNIT - II (12 hrs)

AMPLITUDE MODULATION

Need for modulation. Amplitude modulation, Modulation index, frequency spectrum, generation of AM (balanced modulator,), Amplitude Demodulation (diode detector), other forms of AM: Double side band suppressed carrier, DSBSC generation (Balanced modulator), Single side band suppressed carrier, SSBSC generation (Filter method, phase cancellation method, third method), SSB detection, Introduction to other forms of AM (Pilot carrier modulation, Vestigial side band modulation).

UNIT- III (12 hrs)

ANGLE MODULA TION

Frequency and phase modulation, modulation index and frequency spectrum, equivalence between FM and PM, Generation of FM (Direct and indirect methods), FM detector (Slope detector, balanced slope detector, PLL).Comparison between AM, FM and PM.

UNIT- IV (12 hrs)

TRANSMITTERS& RECEIVERS

Transmitters: Communication channels for AM and FM broadcast, AM transmitter: Lowlevel and high level modulation, FM transmitter.

Receivers: Receiver parameters, sensitivity, selectivity and fidelity, Super Heterodynereceiver, AM receivers, FM receivers. Frequency division multiplexing.

UNIT - V (12 hrs)

DIGITAL COMMUNICATION

Sampling theorem, Pulse Amplitude Modulation (PAM), Time Division Multiplexing (TDM), Pulse Width Modulation (PWM) and Pulse Position Modulation(PPM), Pulse Code Modulation, Differential Pulse Code Modulation, Delta Modulation, Adaptive DeltaModulation.

TEXTBOOKS

1. H. Taub and D. Schilling, Principles of Communication Systems, Tata McGraw-Hill (1999)
2. W.Tomasi, Electronic Communication Systems: Fundamental through Advanced,
3. Pearson Education (2004)
4. L.E.Frenzel, Communication Electronics, Principle and Applications, Tata Mcgraw-Hill (2002)
5. L. W. Couch II, Digital and Analog Communication Systems, Pearson Education (2005)
6. H.P.Hsu, Analog and Digital Communication, Tata McGraw-Hill (2006)

REFERENCE BOOKS

1. S.Haykin, Communication Systems, Wiley India (2006)
2. G. Kennedy and B. Davis, Electronic communication systems, Tata McGraw Hill (1999)
3. R. P. Singh and S. D. Sapre, Communication Systems: Analog and Digital, Tata McGraw Hill (2007)
4. L. E. Frenzel, Communication electronics: Principles and applications. Tata McGraw Hill (2002)
5. T.G. Thomas and S. Chandra Sekhar, Communication theory, Tata McGraw Hill (2006)

ELECTRONICS LAB -6(A)

ELECTRONIC COMMUNICATIONS LAB

Work load: 30 hrs per semester **2 hrs/week**

(Any six experiments should be done)

1. Study of Amplitude Modulation and Demodulation.
2. Study of Frequency Modulation and Demodulation
3. Study of Pulse Amplitude Modulation
4. Study of Pulse Width Modulation
5. Study of Pulse Position Modulation
6. Study of Pulse Code Modulation
7. Simulation of AM modulation and Demodulation using software.
8. Simulation of FM modulation and Demodulation using software.

Model Question Paper
Sub: Electronics – Semester – V
Paper 5 – Microprocessors (Intel 8085)

Time: 3 Hrs | Max Marks : 75 Marks

Section A

Answer all the following questions **10 x 5 = 50 Marks**

1. a. Draw the block diagram of Intel 8085uP and Explain.
   or
   b. Write a brief note on Interrupts in 8085uP.

2. a. Explain briefly about the timing diagrams for Opcode.(Fetch, Decode & Execute cycles)
   or
   b. Write a brief note on functional explanation of Ram & Rom

3. a. Write an algorithm and ALP program to perform 8-bit & 16-bit addition.
   or
   b. Explain the time delays of using single and double registers.

4. a. Explain the interfacing of 4K x 8ROM to 8085uP
   or
   b. Differentiate between the IO mapped and Memory mapped IO interfacing.

5. a. Explain the interfacing of a keyboard to 8085uP
   or
   b. Explain the interfacing of a Stepper Motor to 8085uP.

Section-B

Answer any Five of the following questions **5 x5 = 25 Marks**

6. Write a brief note on Addressing modes of 8085uP.
7. Explain the register structure of 8085uP.
8. Explain the memory Write & Read cycle diagrams.
9. Write an ALP program to perform multiplication of two 16-bit numbers 05h and 25h.
10. Explain the concept of Subroutines in 8085uP.
11. Explain the call & Jump instructions in 8085uP.
12. Draw the block diagram of PPI-8255.
13. Write briefly about the temperature sensors for interfacing to 8085uP

1.

2. E. Raghu 10/5/17

3. S. G

MODEL QUESTION PAPER
ELECTRONICS – SEMESTER V – PAPER VI (A)
ELECTRONIC COMMUNICATIONS

Duration: 3 hrs | Max. Marks: 75

SECTION – A

Answer all the questions 10×5=50

1. (a) Explain different types of electronic communication systems.

   (or)

   (b) Write a short note on relationship between bit rate, band rate, band width and signal to noise ratio.
2. (a) Draw and explain the circuit of balanced modulator to generate AM signal.

   (or)

   (b) Write a brief note on DSBSC generation of AM waves.
3. (a) Draw the circuit diagram of FM detector and explain its working.

   (or)

   (b) Write the differences between AM, FM and PM
4. (a) Draw the block diagram of AM transmitter (low level & high level) modulation and explain its working.

   (or)

   (b) Write a note on Super heterodyne receivers.
5. (a) Explain Time division multiplexing (TDM)

   (or)

   (b) Write a note on Delta modulation.

SECTION – B

Answer any five of the following 5×5=25

6. What are the different types of noise in communication system.
7. Draw the block diagram of communication system
8. What is the need for modulation of audio signals
9. Write a short note on other forms of AM signal
10. Explain the frequency components of FM wave
11. What are the communication channels for AM
12. Differentiate Sensitivity and Selectivity of receivers
13. The total power content of AM signal is 1000 watt. Determine the power transmitted at carrier frequency and at each side bands when modulation percentage is 100.

1. 16/5/17
2- 16/5/17
3. S. GRM