KINGS
COLLEGE OF ENGINEERING

Department of Computer Science and Engineering

QUESTION BANK

Subcode/Subject : CS1304 – Microprocessor & Microcontroller Year/Sem: III / V

UNIT – I
THE 8085 MICROPROCESSOR
PART – A (2Marks)

1. How AD0-AD7 are multiplexed?
2. Why the ready signals of 8085 microprocessor is sampled by the processor?
3. List out the similarities between CALL-RET and PUSH-POP instruction
4. How the address and data lines are demultiplexed in 8085?
5. List out the function of SIM instructions.
6. What is buffer? What is the use of buffer?
7. State the function of HOLD pin in intel 8085 processor.
8. What is the need of ALE signals in 8085 processor?
9. What is the necessity of S0,S1 pins in 8085?
10. List the allowed register pairs of 8085?
11. Mention the purpose of SID and SOD lines.
12. What is Microprocessor? Give the power supply & clock frequency of 8085
13. List few applications of microprocessor-based system.
14. What are the functions of an accumulator?
15. Mention the purpose of SID and SOD lines
16. What is an Opcode?
17. List the four instructions which control the interrupt structure of the 8085
18. What is meant by polling?
19. What is meant by interrupt?
20. Explain priority interrupts of 8085.
21. What is a microcomputer?
22. What is the signal classification of 8085
23. What are operations performed on data in 8085
24. Steps involved to fetch a byte in 8085
25. How many interrupts does 8085 have, mention them
26. Basic concepts in memory interfacing

PART- B

1. (a) Explain the Logical and Arithmetic instructions available in 8085 (10)
   (b)Explain the functions of Flag register in 8085 processor (6)

2. (a) Differences between I/O mapped I/O and Memory mapped I/O (6)
   (b) Write an assembly language program to convert 8-bit binary to ASCII code (10)

3. (a) Draw the block diagram of 8085 microprocessor and explain (10)
   (b) Write an assembly language program to add two 2-digit BCD numbers (6)

4. (a) Explain the instruction set of 8085 microprocessor in detail with one example for each group (10)
   (b) Write a notes on status flag (6)

5. Explain the pin diagram of 8085 microprocessor and explain the functional usage of each pin in detail (16)

6. (a) Draw the timing diagram of MVI A,08H (8)
   (b) Write an assembly language program to convert ASCII code to 8-bit binary (8)

7. (a) Explain the timing diagram when 8085 fetches and executes instruction OUT FFH which is stored in memory staring form the address 8000H (12)
   (b) List out the maskable and non-maskable interrupts available in 8085 microprocessor (4)

8. (a) How do the instructions of 8085 is classified based on their functions and word length? Give example (10)
   (b) Write an ASSEMBLY LANGUAGE PROGRAM to add two 8-bit numbers (6)

9. (a) Write briefly about IN and OUT instructions with an example program and draw the timing diagram for both instructions (8)
   (b) Explain briefly about the different types of interrupts in 8085 (8)

UNIT-II
8086 SOFTWARE ASPECTS
PART – A (2 Marks)

1. What is meant by Software interrupts in 8086?
2. State the modes in which 8086 operates.
3. How the interrupts can be masked/unmasked in 8086?
4. What are the signals involved in memory bank selection of 8086 microprocessor?
5. Explain the difference between near procedure and far procedure.
6. What is the function of SI and DI registers in 8086?
7. What is stack?
8. What are the advantages of using memory segmentation?
9. What is macro?
10. Explain the uses of PUSH and POP instruction in 8086.
11. Explain ALIGN & ASSUME
12.. Explain PTR & GROUP
13. Explain PROC & ENDP
14. Explain SEGMENT & ENDS
15. Define SOP
16. What are procedures
17. Explain the linking process
18. Explain about passing parameters using registers with example
19. What is recursive procedures
20. What are Macros
21. What are the 8086 interrupt types
22. What is interrupt service routine

PART-B

1. (a) Write an assembly language program in 8086 to search the largest data in the array (10)
   (b) Explain the various status flags in 8086 (6)

2. (a) Discuss the various addressing modes of 8086 (10)
   (b) Explain the following assembler directive in 8086 (6)
   i. ASSUME
   ii. EQU
   iii. DW
3. (a) Write short notes on Macro (6)
   (b) Explain the function of assembler directives (10)

4. Explain the architecture of 8086 (16)

5. (a) Explain the register organization of 8086 (10)

(b) Explain the pin diagram of 8086 (6)

6. Discuss the instruction set of 8086 in detail (16)

UNIT – III
8086 SYSTEM DESIGN
PART –A (2 Marks)

1.How clock signal is generated in 8086? What is the maximum internal clock frequency of 8086?
2. Define the multiprocessor system.
3. Draw and explain the time shared bus.
4. List the advantages of multiprocessor system.
5. What is bus arbiter? What is the function of that bus arbiter?
6. Explain the features of 8087
7. Explain the function of 8086 pin
   (a) NMI
   (b) DT/R
   (C) QS0-QS1
8. Explain the function of
   (a) BUSY
   (b) RQ/GT
   (c) INT
9. What are the schemes for establishing priority in order to resolve bus arbitration problem?
10.How single stepping can be done in 8086?
11. State the significance of LOCK signal in 8086?

PART-B

1. (a) Draw and explain the maximum mode of 8086 (12)
   (b) List the advantages of multiprocessor system (4)

2. (a) Explain the functions of (8)
   i. HLDA
   ii. RQ/GT0
   iii. DEN
   iv. ALE
   (b) Draw and explain the minimum mode of 8086 (8)

3. (a) Draw and explain the block diagram of minimum mode of operation (12)
   (b) Write notes on addressing memory (4)

4. Define the bus cycle and minimum mode read and write bus cycles with proper timing diagram (16)

5. (a) Draw the input and output timing diagram of maximum mode of operation in 8086 (10)
   (b) Explain the addressing capabilities of 8086 (6)

6. (a) Draw and explain the bit pattern of the control registers of 8087 (4)
   (b) Draw and explain the block diagram of 8087 (12)

UNIT – IV
I/O INTERFACING
PART-A (2 Marks)

1. What is meant by i/p port and o/p port?
2. Compare I/O mapped I/O and memory mapped I/O
3. Illustrates the different modes of operation in 8255
4. List the features of 8251
5. What is the internal operating frequency of 8259? How can you derive it from the clock signal?
6. What is the function of GATE signal in 8254 timer?
7. What is the format of KWI in 8259?
8. What is the difference between programmable internal timer 8253/54?
9. Give the control format of 8253/54
10. What is the need of DMA in microprocessor?
11. Explain the different types of DMA transfer
12. Write the features of mode 0 in 8255?
13.. What are the features used mode 1 in 8255?
14.. What are the signals used in input control signal & output control signal?
15. What are the features used mode 2 in 8255?
16. What are the modes of operations used in 8253?
17. What are the different types of write operations used in 8253?
18. Give the different types of command words used in 8259a?
19. Give the operating modes of 8259a?
20. What is the output modes used in 8279?
21. What are the modes used in keyboard modes?
22. What are the modes used in display modes?
23. What is the use of modem control unit in 8251?
24. Give the register organization of 8257?
25. What is the function of DMA address register?
26. What is the use of terminal count register?
27.What is the function of mode set register in 8257?

PART – B

1. Draw the block diagram of 8279 and explain the function of each (16)

2. With the help of neat diagram explain how 8251 is interfaced with 8085 and used for serial communication (16)

3. Discuss the silent feature of 8259 and explain the block diagram of 8259-programmable interrupts controllers (16)

4. (a) Describe the various modes of operation in 8253 programmable internal timer (8)
   (b) Explain the operation of DMA controller 8237 (8)

5. (a) Draw and explain the interfacing of cascaded 8259 with 8086 (10)
   (b) Explain in detail with the modes of operation of 8255 (6)

6. Draw the pin diagram of 8257 programmable DMA controller and explain the function of each pin in detail (16)

7. Discuss the various operating modes of 8253 timer with necessary control words (16)

UNIT – V
MICROCONTROLLERS
PART –A (2 Marks)

1. What is microcontroller?
2. What is the difference between the microprocessor and microcontrollers?
3. List the features of 8051 microcontrollers.
4. State the various modes available for timer in 8051
5. List the interrupts of 8051 microcontrollers
6. What are the register banks in 8051 microcontroller?
7. Draw and explain the bit pattern of TMOD register
8. What are the types of addressing modes in the 8051?
9. Explain DJNZ instructions of intel 8051 microcontroller?
10. State the function of RS1 and RS0 bits in the flag register of intel 8051
11. Explain the function of the pins PSEN and EA of 8051.
12. Explain the 16-bit registers DPTR and SP of 8051.
13. Name the special functions registers available in 8051.
14..Explain the register IE format of 8051.
15.Name the five interrupt sources of 8051?.

PART-B

1. With the necessary diagram of control word format, explain the various operating modes of timer in 8051 microcontroller (16)

2. (a) With the help of neat diagram explain the memory organization of 8051 microcontroller (8)
   (b) List out the silent feature of 16-bit microcontrollers (8)

3. Give the detail of pin diagram of 8051 (16)

4. (a) Explain the interrupt structure of 8051 (8)

   (b) Explain the memory structure of 8051 (8)

5. Explain the instruction set of 8051 with an example (16)
