



KINGS

COLLEGE OF ENGINEERING



DEPARTMENT OF MECHANICAL ENGINEERING QUESTION BANK

Subject Name: ELECTRONICS AND MICRIPROCESSORS

Year/Sem:II / IV

UNIT I

SEMICONDUCTORS AND RECTIFIERS

PART-A(2 MARKS)

1. What are valence electrons?
2. What is forbidden energy gap?
3. What are conductors? Give examples.
4. What are insulators? Give examples.
5. What are Semiconductors? Give examples.
6. What are the types of Semiconductor?
7. What is Intrinsic Semiconductor?
8. What is Extrinsic Semiconductor?
9. What are the types of Extrinsic Semiconductor?
10. What is P-type Semiconductor?
11. What is N-type Semiconductor?
12. What is doping?
13. Which is majority and minority carrier in N-type Semiconductor?
14. Which is majority and minority carrier in P-type Semiconductor?
15. What is depletion region in PN junction?
16. What is barrier voltage?
17. What is meant by biasing a PN junction?
18. What are the types of biasing a PN junction?
19. What is forward bias and reverse bias in a PN junction?
20. What is Reverse saturation current?
21. What is reverse break down?
22. Give the diode current equation.
23. Give two applications of PN junction diode.
24. What is rectifier? Give its types.

PART-B

1. Explain N-type and P-type semiconductor with their energy band diagram. (16)
2. Explain the following:
 - a. Mobility b. Drift current c. Conductivity d. Diffusion current (16)
3. What is break down in diode? What are its types? (16)

4. Explain PN junction diode with characteristics. (16)
5. Explain zener junction diode with characteristics. (16)
6. Write short note on half wave rectifiers. (16)
7. Write short note on full wave rectifiers. (16)

UNIT II

TRANSISTORS AND AMPLIFIERS

PART-A(2MARKS)

1. What is a transistor (BJT)?
2. What are the terminals present in a transistor?
3. What is FET?
4. Why FET is called voltage controlled device?
5. What are the two main types of FET?
6. What are the terminals available in FET?
7. What is JFET?
8. What are the types of JFET?
9. What are the two important characteristics of JFET?
10. What is transconductance in JFET?
11. What is amplification factor in JFET?
12. Why do we choose Q point at the center of the load line?
13. List out the different types of biasing.
14. What do you mean by thermal runaway?
15. Why is the transistor called a current controlled device?
16. Define current amplification factor.
17. What are the requirements for biasing circuits?
18. When does a transistor act as a switch?
19. What is biasing?
20. What is stability factor?
21. Explain about the various regions in a transistor.
22. Explain about the characteristics of a transistor.

PART-B

1. Explain the construction, operation, volt ampere characteristics, and application of SCR, also explain its two transistor model. (16)
2. Explain the construction, operation, equivalent circuit, volt ampere characteristics, and application of UJT. (16)
3. Explain the construction, operation, equivalent circuit, volt ampere characteristics, and application of DIAC. (16)
4. Explain the construction, operation, equivalent circuit, volt ampere characteristics, and application of TRIAC. (16)
5. Explain about CE configuration and its characteristics. (16)
6. Explain about CB configuration and its characteristics. (16)

7. Explain about CC configuration and its characteristics. (16)
8. Explain the construction, operation and volt ampere characteristics of FET. (16)
9. What are the types of feedback? Explain with neat sketch. (16)

UNIT III

DIGITAL ELECTRONICS

PART-A(2MARKS)

1. Define binary logic.
2. Convert $(634)_8$ to binary.
3. Convert 0.640625 decimal number to its octal equivalent.
4. Convert 0.1289062 decimal number to its hex equivalent.
5. Subtract $(0\ 1\ 0\ 1)_2$ from $(1\ 0\ 1\ 1)_2$.
6. Add $(1\ 0\ 1\ 0)_2$ and $(0\ 0\ 1\ 1)_2$.
7. Using 10's complement subtract $72532 - 3250$.
8. Find 2's complement of $(1\ 0\ 1\ 0\ 0\ 1\ 1)_2$.
9. Subtract $(1\ 1\ 1\ 0\ 0\ 1)_2$ from $(1\ 0\ 1\ 0\ 1\ 1)_2$ using 2's complement method.
10. What is meant by bit?
11. Define byte.
12. List the different number systems.
13. What are the different types of number complements?
14. Given the two binary numbers $X = 1010100$ and $Y = 1000011$, perform the subtraction (a) $X - Y$ and (b) $Y - X$ using 2's complements.
15. Write the names of basic logical operators.
16. What are basic properties of Boolean algebra?
17. State the associative property of boolean algebra.
18. State the commutative property of Boolean algebra.
19. State the distributive property of Boolean algebra.
20. What are the classification of sequential circuits?
21. Define Flipflop.
22. What are the different types of flip-flop?

PART-B

1. What is the operation of RS flip-flop? (16)
2. What is the operation of SR flip-flop? (16)
3. What is the operation of D flip-flop? (16)
4. What is the operation of JK flip-flop? (16)
5. What is the operation of T flip-flop? (16)
6. What are the different types of shift registers? Explain. (16)
7. Explain about counters. (16)
8. Construct and implement the half and full adders using logic gates. (16)
9. Explain the operation of A/D and D/A converters. (16)

UNIT IV

MICROPROCESSOR

PART-A(2MARKS)

1. Give the power supply & clock frequency of 8085 Microprocessor
2. What is the signal classification of 8085?
3. What are operations performed on data in 8085?
4. Steps involved to fetch a byte in 8085.
5. How many interrupts does 8085 have, mention them?
6. Explain the basic concepts in memory interfacing.
7. Define instruction cycle, machine cycle and T-state.
8. What is an instruction?
9. What is the use of ALE?
10. How many machine cycles does 8085 have, mention them?
3. What are operations performed on data in 8085?
4. Steps involved to fetch a byte in 8085.
5. How many interrupts does 8085 have, mention them?
6. Explain the basic concepts in memory interfacing.
7. Define instruction cycle, machine cycle and T-state.
8. What is an instruction?
9. What is the use of ALE?
10. How many machine cycles does 8085 have, mention them?
11. Explain the signals HOLD, READY and SID.
12. Mention the categories of instruction and give two examples for each category.
13. Explain LDA, STA and DAA instructions.
14. Explain the different instruction formats with examples.
15. What is the use of addressing modes, mention the different types?
16. Differentiate between absolute and linear select decoding.
17. What is the use of bi-directional buffers?
18. Give the register organization of 8085.
19. Define stack and explain stack related instructions.
20. Why do we use XRA A instruction?
21. Define PSW.
22. What is Microcontroller and Microcomputer?

PART-B

1. Compare CALL and PUSH instructions. (16)
2. How does the microprocessor differentiate between data and instruction? (16)
3. Explain 8085 architecture. (16)
4. Explain the instruction set of 8085. (16)

5. Explain the Addressing modes.

(16)

UNIT V

INTERFACING AND APPLICATIONS OF MICROPROCESSOR

PART-A(2MARKS)

1. Give few applications of 8085 microprocessor.
2. List the advantages of microprocessor based system design.
3. What is a Buffer?
4. What is a tristate buffer?
5. What is meant by memory address space?
6. If an information flows from memory to microprocessor, which signal is used by it?
7. What is the use CS pin of a memory chip?
8. If the starting address of 6K memory is 0D00, then what is the ending address?
9. If an information flows to memory, which signal is used by it?
10. What is memory mapping?
11. What is I/O mapping?
12. What is memory mapped I/O?
13. What is I/O mapped I/O?
14. Mention the advantages of memory mapped I/O.
15. Mention the advantages of I/O mapped I/O.
16. Mention the disadvantages of I/O mapped I/O.
17. What is the use of ALE signal?
18. What is the purpose IO/M signal?
19. Name the two classifications of stepper motor.
20. List the applications of stepper motor.

PART-B

1. Explain I/O interfacing. (16)
2. Explain stepper motor interfacing. (16)
3. Explain traffic light control. (16)
4. Explain temperature control using 8085. (16)