



KINGS

COLLEGE OF ENGINEERING



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

QUESTION BANK

SUB.NAME : ELECTRONICS AND MICROPROCESSOR SUB CODE : EC 1265
BRANCH : MECH STAFF NAME: R.JERLIN EMILIYA
YEAR : II SEMESTER: 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?

PART – B

1. With neat sketch, explain the classification of solids based on energy bands? (16)
2. Explain the operation of PN junction diode in detail (16)
3. Explain the operation of Zener diode in detail (16)
- 4 Explain the types of Rectifiers in detail (16)

UNIT II: TRANSISTORS AND AMPLIFIERS

PART – A (2 Marks)

1. What is FET?
2. Why FET is called as voltage controlled device?
3. What are the two main types of FET?
4. What are the terminals available in FET?
5. What is JFET?
6. What are the types of JFET?
7. What are the two important characteristics of JFET?
8. What is transconductance in JFET?
9. What is amplification factor in JFET?

10. What is MOSFET?
11. What are the types of MOSFET?
12. Why the transistor is called as current controlled device?
13. Define current amplification factor
14. When does a transistor act as a switch?
- 15 What is stability factor?
16. Explain about the characteristics of a transistor

PART – B

1. Describe the three configuration of BJT with necessary diagrams (16)
2. Explain the operation of FET in detail (16)
3. Explain the operation of UJT in detail (16)
4. Describe the types of negative feedback with suitable diagrams (16)

UNIT III: DIGITAL ELECTRONICS

PART – A (2 Marks)

1. Given the two binary numbers $X = 1010100$ and $Y = 1000011$, perform the subtraction (a) $X-Y$ and (b) $Y - X$ using 2's complements.
2. What is meant by parity bit?
3. What are registers?
4. What is meant by register transfer?
5. Define binary logic
6. Define logic gates
7. Define duality property.
8. Find the complement of the functions $F1 = x'yz' + x'y'z$ and $F2 = x(y'z' + yz)$.
By applying De Morgan's theorem as many times as necessary.

9. Give the general procedure for converting a Boolean expression in to multilevel NAND diagram
10. Define half adder.
11. Define full adder
12. Define Flip flop.
13. What are the different types of flip-flop?
14. What is the operation of D flip-flop?
15. What is the operation of JK flip-flop?
16. What is the operation of T flip-flop?
17. Define race around condition.
18. What is edge-triggered flip-flop?
19. What is a master-slave flip-flop?
20. Define rise time.
21. Define fall time.
22. What are the different types of shift Registers?

PART-B

1. Simplify the Boolean function using tabulation method
 $F = \Sigma (0, 1, 2, 8, 10, 11, 14, 15)$ (16)
2. Determine the prime implicants of the function
 $F(W,X,Y,Z) = \Sigma (1,4,6,7,8,9,10,11,15)$ (16)
3. Simplify the Boolean function using K-map.
 $F(A,B,C,D,E) = (0,2,4,6,9,13,21,23,25,29,31)$ (16)
4. Reduce the following function using K-map technique
 $f(A,B,C,D) = \pi M (0,2,3,8,9,12,13,15)$ (16)
5. Reduce the following function using k-map technique
 $f(A,B,C,D) = \pi M(0,3,4,7,8,10,12,14) + d(2,6)$ (16)

UNIT IV: 8085 MICROPROCESSOR
PART – A

1. What is Microprocessor?
2. What are the basic units of a microprocessor?
3. Define hardware and software?
4. What is an assembly language?
5. What is a low –level language?
6. What is a high level language?
7. What is assembler?
8. What is Microcomputer?
9. Define bit, byte, word and instruction
10. What is a bus?
11. Define the address bus:
12. Mention the steps, the MPU needs to communicate with the peripheral
13. Define data bus:
14. Why 8085 is known as 8 – bit microprocessor?
15. Define control bus
16. Why is the data bus bidirectional?
17. Why is the address bus unidirectional?
18. Specify the four control signals commonly used by the 8085 MPU
19. List the four categories of 8085 instructions that manipulate data.
20. How many instructions are available in 8085 instruction set?
21. How 8085 microprocessor operations are classified

22. Define opcode and operand
23. How 8085 instructions are classified according to the work size or byte size.?
24. What is addressing and what are the addressing modes available in 8085?
25. Explain the immediate addressing with an example
26. Direct Addressing
27. Explain register addressing with an example
28. What is register indirect addressing? Give an example
29. Explain the implied addressing with an example
30. Define mnemonics
31. What is Opcode fetch cycle?

PART –B

1. Draw & explain the architecture of 8085 microprocessor. (16)
2. Draw the Pin Diagram of 8085 and explain the function of various signals (16)
3. Explain the classification of instruction set (16)
4. Write a program to sort the numbers in ascending and descending order. (16)
5. Draw the timing diagram of opcode fetch, memory read and memory write? (16)

UNIT V: INTERFACING AND APPLICATIONS OF MICROPROCESSOR

PART – A (2 Marks)

1. What is the use of 8251 chip?
2. What are the different types of methods used for data transmission?
3. What are the various programmed data transfer methods?
4. What is synchronous data transfer?
5. What is asynchronous data transfer?
6. What are the functional types used in control words of 8251a?
7. What are the basic modes of operation of 8255?

8. Write the features of mode 0 in 8255
9. What are the signals used in input control signal & output control signal?
10. What are the features used mode 2 in 8255?
11. Give the different types of command words used in 8259A
12. What are the modes used in keyboard modes?
13. What are the modes used in display modes?
14. What is the use of modem control unit in 8251?
15. What is a control word?
16. What is the size of ports in 8255?
17. What is interfacing?
18. What is an USART?
19. What is the use of 8251 chip?
20. The 8279 is a programmable _____ interface.
- 21 List the major components of the keyboard/Display interface.
22. What is the use of stepper motor?
23. What is TXD?

PART – B (16 Marks)

1. With neat sketch explain the functions of 8255 PPI. (16)
2. With neat sketch explain the functions of 8251. (16)
3. With neat sketch explain the function of DMA controller. (16)
4. With neat sketch explain the function of Programmable Interrupt Controller. (16)
5. With neat sketch explain the function of stepper motor. (16)