

SHRI ANGALAMMAN COLLEGE OF ENGG & TECH.,TRICHY –621105 (Approved by AICTE, New Delhi and Affiliated to Anna University Chennai/Trichy) (ISO 9001:2008 Certified Institution) DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



<u>QUESTION BANK</u> ELECTRONICS AND MICROPROCESSOR-EC1265

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 = _ (0, 1, 2, 8, 10, 11, 14, 15) (16)
- 2. Determine the prime implicants of the function
- F(W,X,Y,Z) = (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)=_ M (0,2,3,8,9,12,13,15) (16)
- 5. Reduce the following function using k-map technique
- f(A,B,C,D) = 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)