

Register Number:

B.E DEGREE EXAMINATIONS: APRIL/MAY 2014

(Regulation 2009)

Fifth Semester

MECHANICAL ENGINEERING

ECE281: Electronics And Microprocessor

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Energy gap between valence band and conduction band is called
 - a) Covalent bond
 - b) Energy band
 - c) Forbidden gap
 - d) Fermi level
2. Intrinsic Semiconductor behaves as a perfect at absolute zero.
 - a) Conductor
 - b) Dielectric
 - c) Insulator
 - d) Semiconductor
3. Field Effect Transistor is a
 - a) voltage controlled device
 - b) current controlled device
 - c) reactance controlled device
 - d) resistance controlled device
4. When the collector junction in transistors is biased in the reverse direction & the emitter junction in the forward direction, the transistor is said to be in the
 - a) Cut-off mode
 - b) Saturation mode
 - c) Active mode
 - d) Inverse mode
5. Basic unit of storage is called -----
 - a) Memory
 - b) loop
 - c) flip flop
 - d) counter
6. T flip flop is called as -----
 - a) Trigger
 - b) Toggle
 - c) Twist
 - d) Triple
7. 8085 is a _____ bit microprocessor.
 - a) 16
 - b) 8
 - c) 32
 - d) 24
8. Out of the 5 interrupt which has the highest priority
 - a) INTR
 - b) INTA
 - c) RST 7.5
 - d) TRAP

9. In memory mapped I/O, the device address is _____
 - a) 8 bit
 - b) 16 bit
 - c) 32 bit
 - d) 64 bit
10. The function of IO/M' in 8085 microprocessor is
 - a) to access memory
 - b) to access I/O
 - c) to differentiate I/O and Memory access
 - d) to access control signals

PART B (10 x 2 = 20 Marks)

11. Differentiate Intrinsic and Extrinsic Semiconductors.
12. What do you mean by voltage regulation?
13. State the ideal characteristics of opamp.
14. Define break over voltage of SCR.
15. State De Morgans law.
16. Give the logic diagram and truth table of OR gate and Exclusive OR gate.
17. What are the different types of instructions supported by 8085 processor?
18. Name the addressing modes of 8085.
19. Differentiate between memory mapped I/O and I/O mapped I/O.
20. What is meant by direct memory access data transfer?

PART C (5 x 14 = 70 Marks)

21. a) (i) Differentiate semiconductors, conductors & insulators with neat energy band structure. (7)
(ii) Explain the operation of PN diode under forward & reverse bias conditions. (7)
(OR)
b) (i) With neat diagrams and graphs explain the operation of a center tapped full wave rectifier (7)
(ii) What is Zener effect? Explain the construction, operation and VI characteristics of Zener diode (7)
22. a) (i) Explain the input and output characteristics of a transistor in CE configuration. (7)
(ii) Review the construction, operation, volt ampere characteristics of UJT. Also mention its applications (7)
(OR)
b) (i) Explain the operation & characteristics of N-channel JFET with neat diagrams. (7)

(ii) Discuss the construction, operation and volt ampere characteristics of SCR (7)

23. a) (i) Draw the logic diagram of RS flip flop and explain its operation with truth table (7)

(ii) With the help of logic diagram discuss the working of a 4 bit Ripple counter. (7)

(OR)

b) (i) Explain the operation of a half adder and full adder with appropriate logic diagrams, expressions and truth tables. (7)

(ii) Discuss any two analog to digital conversion techniques used in digital systems (7)

24. a) (i) Draw the functional block diagram of 8085 microprocessor and explain its operation. (8)

(ii) Explain the various arithmetic and logical instructions of 8085 microprocessor. (6)

(OR)

b) (i) Explain the various addressing modes of 8085 with appropriate examples. (10)

(ii) Discuss the classification of 8085 instructions set based on word (byte) size with an example. (4)

25. a) Show an interface circuit of 8 bit input port with switches and 8 bit output port with LED's to an 8085 microprocessor.

(OR)

b) Explain how a stepper motor can be interfaced to 8085 microprocessor, also write the necessary ALP to run the stepper motor in both the directions.
