Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 31566

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fourth Semester

Mechanical Engineering

ME 2255/ME 46/ EC 1265/10122 ME 406/080120019 — ELECTRONICS AND MICROPROCESSORS

(Common to Automobile Engineering, Production Engineering and Mechanical and Automation Engineering)

(Regulation 2008/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Sketch neatly the energy band diagram for Conductors, Semi Conductors and Insulators.

2. Differentiate P and N type materials.

3. Sketch the characteristics of UJT.

4. State any two applications of SCR.

5. Convert the decimal number 148 into a hexadecimal number.

6. Design a AND gate using a NAND gate.

7. List the various addressing modes of 8085.

8. Differentiate RAM and ROM.

9. What are the criterion to be considered for interfacing a microprocessor?

10. List the fundamental I/O techniques.

PART B — (5 × 16 = 80 marks)

11. (a) Write short notes on :

(i) Intrinsic semiconductors

(ii) Extrinsic semiconductors

(iii) P type material

(iv) N type material. (16)

Or

(b) (i) Explain how zener diode is used as a voltage regulator. (10)

(ii) Discuss the characteristics of zener diode. (6)

12. (a) (i) Explain about the operation of a CE amplifier. (8)

(ii) Explain about the operation of a Class A amplifier. (8)

Or

(b) (i) Explain about the operation and characteristics of SCR. (8)

(ii) Explain about the operation and characteristics of TRIAC. (8)

13. (a) Design a full adder and a full subtractor. (16)

Or

(b) (i) Explain the operation of a 3-bit binary counter circuit. (8)

(ii) Explain the basic concept of Analog to Digital conversion. (8)

14. (a) Briefly discuss about architecture of 8085. (16)

Or

(b) Discuss all the Data transfer, Arithmetic and Logical Instructions. (16)

15. (a) (i) Compare the memory mapped I / O and Peripheral I / O. (8)

(ii) Write short notes on Output interfacing. (8)

Or

(b) Explain the 8085 based temperature control system. (16)