

Reg. No. :

**Question Paper Code : 20416**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Third/Fourth Semester

Automobile Engineering

EC 6464 – ELECTRONICS AND MICROPROCESSORS

(Common to Mechanical and Automation Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between N type and P type semiconductor.
2. How is zener diode used as a voltage regulator?
3. List the advantages of Field Effect Transistor (FET).
4. Give a real time application of SCR and DIAC.
5. Convert  $(52)_{10}$  to binary number.
6. State De-Morgan's theorem.
7. List the different types of general purpose registers.
8. What is the function of a program counter?
9. Give an example for three byte instruction.
10. Specify the function of XCHG instruction?

PART B — (5 × 13 = 65 marks)

11. (a) How does the energy band structure of a semiconductor differ from that of a conductor and an insulator? Explain with suitable diagrams. (13)

Or

- (b) Describe the operation of half wave and full wave rectifier with neat output waveforms and calculate its efficiency. (13)

12. (a) Explain the Input and Output characteristics of a transistor in Common Emitter (CE) Configuration. (13)

Or

- (b) Explain with a neat circuit diagram the characteristics of a Uni-Junction Transistor (UJT). (13)
13. (a) Design a Full adder circuit using Karnaugh map. Draw its logic circuit and give its truth table. (13)

Or

- (b) Design and explain the operation of Serial in serial out registers. (13)
14. (a) With a neat block diagram, explain the architecture of 8085. (13)

Or

- (b) (i) With examples, explain the different types of addressing modes in 8085? (7)  
(ii) Write a program to find 2's complement of a number. (6)
15. (a) Briefly explain the working of Stepper Motor Control interfacing with 8085 microprocessor. (13)

Or

- (b) Describe the interfacing of traffic light controller with 8085 microprocessor. (13)

PART C — (1 × 15 = 15 marks)

16. (a) With a block diagram, explain each block of 8255 Programmable Peripheral Interface-Input Output device in detail. (15)

Or

- (b) With a neat diagram, explain the operation of temperature control system. (15)