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Question Paper Code : 73848

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Fourth Semester

Mechanical Engineering

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

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

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw energy band diagram of insulator.
2. What is intrinsic semiconductor?
3. In a common-Base configuration, current gain of a transistor is 0.965. If the emitter current is 10 mA, what is the value of base current?
4. Draw the circuit symbol of TRIAC.
5. Prove the given Boolean law : $XY + \bar{X}Z + YZ = XY + \bar{X}Z$.
6. Draw the logical diagram of full adder.
7. List the various addressing modes of 8085.
8. Differentiate RAM and ROM.
9. What is an interfacing?
10. List few applications of Microprocessor.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw and explain Zener diode characteristic. (8)
(ii) Describe energy band structure of an open circuited P-N Junction. (8)

Or

- (b) (i) With circuit explain principle of operation of full wave rectifier. (10)
(ii) Describe conduction in P-type and N-type semiconductor. (6)
12. (a) (i) Explain about the operation of 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) (i) Design a half adder and a full adder circuit. (12)
(ii) Convert 1111011 into a hexadecimal and octal number. (4)

Or

- (b) (i) Explain about the various methods of D/A conversion. (8)
(ii) Explain the operation of JK, RS, D and T flipflops. (8)
14. (a) With a neat block diagram, discuss the architecture of 8085 CPU. (16)

Or

- (b) Write an ALP in 8085, to find the factorial of the given integer. Give out the flow chart. (16)
15. (a) Explain in detail about the Input and Output interfacing techniques of 8085 microprocessor. (16)

Or

- (b) Draw and explain in detail about stepper motor interface. (16)