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M.E./M.Tech. Degree Examinations, January 2017

First Semester

MECHATRONICS ENGINEERING

MS16103 – CONCEPTS IN ELECTRONICS ENGINEERING

(Regulation 2016)

QP Code: 645844

Time: Three hours

Maximum : 100 marks

Answer ALL questions

PART A - (10 X 2 = 20 Marks)

1. What is break down in PN junction diode? What are its types?
2. Compare SCR with TRIAC.
3. What is linear mode power supply?
4. Give the applications of class C power amplifier.
5. What are the advantages of active filter over passive filter?
6. Draw the circuit diagram of an integrator using Op-Amp.
7. Convert $(1101)_2$ to its decimal equivalent.
8. What is synchronous counter?
9. Compare analog and digital multimeter.
10. Draw the block diagram of basic measuring system.

PART B - (5 X16 = 80 Marks)

11. (a) What is PN junction? Explain the forward bias and reverse bias of PN **(16)** junction.

(OR)

- (b) Explain the construction and operation of DIAC in detail. Give the **(16)** applications of DIAC.

12. (a) Explain the working principle of Centre tapped Full wave rectifier and **(16)** Bridge rectifier.

(OR)

- (b) Explain the operation of class A and class B amplifiers. (16)
13. (a) Explain the following with respect to Op-Amp
(i) Basic Operation (4)
(ii) Ideal characteristics (4)
(iii) Inverting and Non Inverting mode (8)
(OR)
(b) Explain the working of an Op-Amp based Schmitt trigger circuit. (16)
14. (a) Draw the logic symbol and construct the truth table for the following gates.
(i) Two input NAND gate & Two input OR gate (8)
(ii) NOT gate (4)
(iii) Two input Ex- OR gate (4)
(OR)
(b) What is a shift register? Explain the operation of four basic types of shift registers. (16)
15. (a) Explain the functions of Multimeter in detail. (16)
(OR)
(b) Explain the functions of CRO in detail. (16)