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Question Paper Code : 21499

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Third Semester

Electrical and Electronics Engineering

EE 2203/EE 35/080280018/10133 EE 305 A – ELECTRONIC DEVICES AND CIRCUITS

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the symbol for PN junction diode and zener diode.
2. Draw the input and output waveforms of a bridge rectifier.
3. Name the hybrid parameters of BJT.
4. Write a note on opto couplers.
5. Compare BJT and FET (any two).
6. Differentiate between enhancement MOSFET and depletion MOSFET.
7. Mention any two advantages of negative feedback in amplifiers.
8. State Barkhausen criterion.
9. Draw the circuit of the clamper.
10. List the types of multivibrators.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the operation of PN junction diode and draw its VI characteristics. (8)
(ii) With a neat diagram explain the functionality of a FWR. Mention the effect of capacitive filter here. (8)

Or

- (b) (i) Describe the zener diode shunt voltage regulator. (10)
(ii) In what aspects is an LED different from PN junction diode? State the applications of LED. (6)

12. (a) (i) For the transistor CE configuration, derive the input and output characteristics. (10)
(ii) Compare CB, CE and CC configurations. (6)

Or

- (b) (i) Draw the hybrid equivalent circuit for a CE transistor and derive expressions for various parameters. (12)
(ii) What are power transistor? Give examples. (4)

13. (a) (i) Explain the working of a N channel JFET and hence draw the VI characteristics. (10)
(ii) Compare JFET and a MOSFET. (6)

Or

- (b) (i) How a JFET small signal high frequency model different from a low frequency model. Explain it briefly. (8)
(ii) Derive the expressions for voltage gain and output resistance for a common source JFET amplifier? (8)

14. (a) Draw a neat circuit diagram of a RC phase shift oscillator. Derive an expression for its frequency of oscillations.

Or

- (b) (i) Give the topology for various types of feedback amplifiers. (8)
(ii) Discuss the common mode and differential mode operation of differential amplifiers. (8)

15. (a) (i) With a diagram describe the operation of a clipper that can clip at two independent levels. (8)
(ii) How can we generate (1) narrow pulse from square wave
(2) square wave from triangular wave. (8)

Or

- (b) (i) Describe the operation of UJT relaxation oscillator. (8)
(ii) Explain the applications of Schmit trigger circuit. (8)