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

Question Paper Code : 80493

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Third Semester

Electrical and Electronics Engineering

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

(Regulations 2008/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is rectifier?

2. What is diffusion current?

3. Why the base region is there is BJT?

4. What are power transistors?

5. Write the expression for transcounductance of JEFT.

6. Draw the structural diagram of an enhancement mode – MOSFET.

7. How are amplifiers classified according to negative feedback?

8. Draw the equivalent circuit of crystal oscillator.

9. Draw the circuit of the clamper.

10. List the types of multivibrators.

PART B — ($5 \times 16 = 80$ marks)

11. (a) Explain the working of a PN Junction diode and Zener diode and explain their V-I characteristics. (8 + 8)

Or

(b) Explain the working of center-tapped full wave rectifier (with and without filter) with neat diagrams. (16)

12. (a) (i) Draw hybrid π derive for its parameters. (10)

(ii) Draw CE hybrid π model and CB hybrid π model. (6)

Or

(b) Explain the input and output characteristics of CB configuration using NPN BJT.

13. (a) (i) Explain the working of an channel JEET and hence draw the VI characteristics. (10)

(ii) Compare JEFT and a MOSFET. (6)

Or

(b) (i) How a JEFT small signal high frequency model different from a low frequency model. Explain it briefly. (8)

(ii) Derive the expression for voltage gain and output resistance for a common source JEFT amplifier? (8)

14. (a) Discuss about the stability analysis using frequency response of the loop gain of the feed back amplifier system. Explain all the compensation methods of achieve stability in amplifiers. (16)

Or

(b) Discuss about the following feedback configurations of amplifiers and obtain the feedback factor and closed loop gain.

(i) Shunt – Shunt feed Back.

(ii) Series – Series feed Back. (16)

15. (a) (i) Discuss the operation of one shot multivibator with relevant waveforms. (8)

(ii) Describe the UJT based sawtooth generator. (8)

Or

(b) Describe the following waveshaping circuits

(i) One level clipper

(ii) Two level clamper

(iii) Sinusoidal to square pulse converter. (4 + 4 + 8)

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