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

Question Paper Code : 30992

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY, 2019.

Third Semester

Electrical and Electronics Engineering

EE 2203 — ELECTRONIC DEVICES AND CIRCUITS

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. A semiconductor junction has a reverse saturation current of 0.5 μA at 25°C. What should be the approximate value of reverse saturation current at 75°C.

2. List four application on LED.

3. A transistor has $\alpha = 0.98$, $I_{CO} = 5\ \mu A$ and $I_B = 100\ \mu A$. Find the value of collector current.

4. What is base spreading resistance?

5. Define transconductance of FET.

6. How do JFETs have a very high input impedance?

7. The voltage gain of an amplifier without feed back is 400. If the feed back ratio is equal to 0.1, find the voltage gain of the amplifier with negative feedback.

8. State Barhhausen criterion.

9. State four applications of multivibrators.

10. When does a RL circuit behave as an integrator?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the working of the following :

(i) pn junction diode. (6)

(ii) half wave rectifier. (10)

Or

(b) Explain the working of the following :

(i) Zener diode. (6)

(ii) Bridge rectifier. (10)

12. (a) Explain the working of BJT in common emitter configuration.

Or

(b) Explain the working of BJT in common base configuration.

13. (a) Explain the working of JFET.

Or

(b) Explain the working of enhancement mode MOSFET.

14. (a) (i) An amplifier has a midband gain of 1500 and a bandwidth of 4 MHz. The mid band gain reduces to 150 when a negative feedback is applied. Find the value of feed back factor and the bandwidth. (4)

(ii) Discuss the various types of feedback realisation from amplifier output to input connections. (12)

Or

(b) (i) The parameters of a crystal oscillator equivalent circuit are $Ls = 0.8\ H, Cs = 0.08\ pF$; $Rs = 5\,k\Omega$ and C = 1 pF. Find the series, parallel resonance frequencies and Q factor. (8)

(ii) Explain the working of a RC oscillator. (8)

15. (a) Explain the working of astable multivibrator.

Or

(b) Explain the working of a Schmitt Trigger.

———————