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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013

III Semester

EC8352 –ELECTRONICS ENGINEERING

**Common to Industrial /Manufacturing /Mechanical / Printing / Mechanical (Tamil Medium)
Engineering**

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Brief about drift current and diffusion current with equations.
2. When the reverse current in a particular zener diode increases from 20mA to 30mA, the zener voltage changes from 5.6V to 5.65V. What is the resistance of the device?
3. Calculate I_E in a transistor for which $\beta = 50$ and $I_B = 20\mu A$.
4. Define negative feedback.
5. Give the Shockley equation of a FET.
6. What is negative resistance in UJT?
7. An oscillatory circuit has $L=0.01$ H and $C=10$ pF, find the frequency of oscillations?
8. What is Barkhausean criterion?
9. The output voltage of an op-amp circuit changes by 20 V in 4 μs . What is the slew rate?
10. Implement JK flipflop using its truth table.

Part – B (5 × 16 = 80 Marks)

11. Explain Half Wave Rectifier & Full Wave Rectifier with necessary expressions.
12. a) Explain the Negative feedback amplifier with suitable diagrams and expressions

(OR)

- b) i). What is the need for biasing? (4)
ii). Explain the different biasing methods in BJT with neat diagrams. (12)

13. a) Explain the operation of N-channel JFET with its V-I Characteristics curves.

(OR)

- b) i). Explain how FET is used as VVR. (6)
ii). A JFET amplifier with voltage divider bias has the following parameters: $V_p = -2V$, $I_{DSS} = 4 \text{ mA}$, $R_D = 910\Omega$, $R_S = 3 \text{ K}\Omega$, $R_1 = 12 \text{ M}\Omega$, $R_2 = 8.57 \text{ M}\Omega$ and $V_{DD} = 24V$. Find the value of I_D at operating point. Verify whether the FET will operate in the pinch-off region. (10)

14. a) With a neat functional block diagram explain the operation and applications of IC 555.

(OR)

- b) i). Explain the operation of UJT with its characteristics (6)
ii). Explain the operation of Hartley and Collpitts Oscillators. (10)

15. a) Draw the circuit of i). 8 to 1 Multiplexer, ii). 3 to 8 Decoder, iii). Full adder, iv) SR-FF with necessary expressions.

(OR)

- b) Explain about the Successive approximation and Flash type of ADC's with neat diagrams.