Roll No. | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics Engg.) (2012 Onwards)
B.TECH.(ECE)/(ELECTRONICS & COMPUTER ENGG.)/(ETE) (2011 Onwards)
(Sem.–3)

ANALOG DEVICES & CIRCUITS

Subject Code : BTEC-301
Paper ID : [A1130]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION - A

I. Answer briefly :

(a) Discuss the order of energy gap in a conductor, semi-conductor and insulator.

(b) Define drift Current.

(c) Differentiate between simple switch and ideal diode.

(d) Discuss the limitations of LCD.

(e) State advantages and disadvantages of Tunnel diode.

(f) Why CE configuration of transistor is most widely used? Explain.

(g) Name the different transistor biasing circuits.

(h) Why the channel of JFET is never completely closed at the drain end?

(i) What are the practical applications of emitter follower?

(j) What are the limitations of transistor at high frequencies?

SECTION - B

2. (i) How does negative feedback increase bandwidth of an amplifier.

   (ii) Why is positive feedback necessary to produce oscillations?

3. Compare Phase Shift Oscillator and Wein Bridge Oscillator.

4. (i) List advantages of push-pull Amplifiers.

   (ii) Define cross-over distortion and explain.

5. Explain the variation of hybrid-pi parameters with respect to current, voltage and temperature.

6. Out of CC, CB and CE configurations which configuration is used for amplification and Why?

SECTION -C

7. A UJT is connected across 25V DC supply. The Valley point and peak point voltages are 2V and 15V respectively. Determine the value of charging capacitor if the emitter resistance of 50K Ω is used and the period of relaxation oscillator is 10ms.

8. (i) Draw the equivalent circuit of zener diode as voltage regulator and explain.

   (ii) How does zener diode maintain constant voltage across load in breakdown region?

9. Give detailed classification of large signal amplifiers on the basis of modes of operation. Explain each class.