

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

M.Code : 57583

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**Q1. Write briefly :**

- a) Explain how Zener diode can be used as a voltage regulator.
- b) What is the principle behind the working of an oscillator?
- c) Explain the working of a transistor as a switch.
- d) What do you mean by dc load line?
- e) Give the V-I characteristics of PN diode.
- f) Calculate I_c and I_E for a transistor that has $\alpha_{dc} = 0.99$ and $I_B = 150\mu A$. Determine the value of β_{dc} for the transistor,
- g) Define Transconductance of MOSFET.
- h) What is pinch off voltage?
- i) State Barkhausen criteria for oscillators.
- j) What is diffusion capacitance?

SECTION-B

- Q2. Explain the effect of using negative feedback on various parameters of amplifiers.
- Q3. What are h-parameters? Explain how these are used for making equivalent transistor model.
- Q4. Discuss the factors involved in the selection of I_c , R_c and R_E for a single stage common emitter BJT amplifier circuit, using voltage divider bias.
- Q5. Explain in detail with diagrams, the difference between LED and Photo-diodes.
- Q6. Explain construction, operation and characteristics of JFETs.

SECTION-C

- Q7. Explain the construction and working of MOSFET.
- Q8. Explain the working of Colpitts oscillator. Derive the expression for its frequency.
- Q9. Describe in detail with diagram and characteristics:
- a) UJT
 - b) RC phase shift oscillator.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.