

Code No: 53009

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD****B.Tech II Year I Semester Examinations, May/June -2015****ELECTRONIC DEVICES AND CIRCUITS****(Common to EEE, ECE, CSE, EIE, IT, MCT, ETM, ECM)****Time: 3 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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- 1.a) Explain V-I characteristics of a PN junction diode.
- b) Explain about the transition and diffusion capacitance mechanism of Diode. [8+7]
- 2.a) Show that a PN junction diode can be used as a Voltage Regulator.
- b) With a neat diagram explain the working of L-section filter. [7+8]
- 3.a) Why does CE configuration provide large current amplification while the CB configuration does not? Explain.
- b) Explain how transistor is used as an Amplifier?
- c) Compare CB, CE and CC configuration with respect to  $A_I$ ,  $A_v$ ,  $R_i$  and  $R_o$ . [4+3+8]
- 4.a) Draw a fixed bias circuit and derive an expression for the stability factor.
- b) What is the principle of providing thermal stabilization by means of different methods of transistor biasing? How does this differ from the compensation techniques using a diode or thermistor or sensistor? [6+9]
- 5.a) What are hybrid parameters? Explain about the salient features of hybrid parameters.
- b) Derive the equations for voltage gain, current gain, input impedance and output impedance for a BJT using the approximate h-parameter model for CE configuration. [6+9]
- 6.a) With the help of suitable diagrams explain the working of different types of MOSFET.
- b) Draw the small signal model of FET for low frequency and high frequency regions and compare with BJT models. [7+8]
- 7.a) Draw the circuit diagram of CD amplifier and explain its working.
- b) Draw the equivalent circuit of UJT and explain its operation with the help of emitter characteristics. [7+8]
- 8.a) From the energy band diagram explain the V-I characteristics of a tunnel diode.
- b) Briefly explain how the construction of Schottky diode favours its use in the high frequency region. [7+8]

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