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Question Paper Code: 90172

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Second Semester

Electronics and Communication Engineering EC 8252 – ELECTRONIC DEVICES

(Common to Medical Electronics/Electronics and Telecommunication Engineering)

(Regulations 2017)

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions

PART - A

 $(10\times2=20 \text{ Marks})$

- 1. What is meant by Avalanche breakdown?
- 2. Give the expression for diffusion current density.
- 3. For a transistor, if $\beta = 200$, find the value of α .
- 4. Why BJT is called as current controlled device?
- 5. What is meant by channel length modulation?
- 6. Differentiate between JFET and MOSFET.
- 7. Outline the working principle of Light Dependent Resistor.
- 8. Differentiate CNTFET structure and traditional MOSFET structure.
- 9. Mention the types of LCD's.
- 10. What is an optocoupler and where it is used?

P	Α	R	T	_	B

		PART - B	(5×13=65 Marks)
11.	a)	Discuss about the forward bias and reverse bias charaderive the current equation for a PN diode.	acteristics of a diode and (13)
		(OR)	
	b)	Derive the transition and diffusion capacitances in I	PN diode. (13)
12.	a)	Explain the input and output characteristics of comemitter configuration in BJT. (OR)	nmon base and common (13)
	b)	Derive the current gain, voltage gain, input impedance in terms of hybrid parameters for a BJT.	ce and output impedance (13)
13.	a)	Illustrate the construction and characteristics of N-o (OR)	channel JFET. (13)
	b)	Illustrate the construction and characteristics N-cha	annel D-MOSFET. (13)
14.		i) Explain the construction and working of Schottkyii) Explain the working of varactor diode with its character (OR)	
	b)	i) Explain the construction and working of MESFE graph.ii) Explain the construction and working of LASER did graph.	(7)
15.	a)	Illustrate the working of SCR with equivalent circuit a (OR)	and characteristic graph. (13)
	b)	Illustrate the working of UJT with equivalent circuit	and characteristic graph. (13)
		PART – C	(1×15=15 Marks)
16.	a)	The phosphorous (donor) concentration in a region of linearly from a concentration of $n_0 = 10^{14} \mathrm{cm}^{-3}$ at $x = 0$ of $n_1 = 10^{17} \mathrm{cm}^{-3}$ at $x = 1 \mathrm{mm}$. The diffusion co $D_n = 22.5 \mathrm{cm}^2/\mathrm{s}$, the diffusion constant for holes is temperature is 300 K. What is the diffusion current	onstant for electrons is $D_p = 5.2 \text{ cm}^2/\text{s}$, and the
		x-direction ? (OR)	(10)
	b)	The reverse gate voltage of JFET, when changes from current changes from 2.2 mA to 2.6 mA. The device Maximum current $I_{DSS} = 10$ mA, Pinch off voltage, Vp of transconductance of the transistor and drain current $I_{DSS} = 10$ mA, I_{DS	parameters of JFET are = -4V. Find out the value