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EAST POINT COLLEGE OF ENGINEERING & TECHNOLOGY
An Autonomous Institution Affiliated to Visvesvaraya Technological University (VTU) Belagavi

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EPBEE203

Second Semester B.E. Degree Examination, May 2026
BASIC ELECTRONICS FOR EES STREAM

TIME:3 hrs. Max.Marks:100

Note: 1. Answer any FIVE full questions, choosing ONE question from each MODULE
2. M: Marks, L: Bloom's level, C: Course outcomes.

		Module-1	M	L	C
Q.1	a	Explain the Forward and Reverse characteristic of Semiconductor Diode	8	L2	CO1
	b	Calculate forward and reverse resistance offered by a Silicon Diode with IF=100mA at VR=50V. Assume VF for Silicon Diode to be 0.75V and reverse current IR=100nA	4	L3	CO1
	c	With neat circuit diagram and waveform, explain the working of Bridge Rectifier	8	L2	CO1
		OR			
Q.2	a	Explain Positive Half Wave Rectifier with input and output waveforms	8	L2	CO1
	b	A Half Wave Rectifier circuit uses a diode with a forward voltage drop of 0.7V. The load resistance is 500Ω and the applied AC input voltage is 22V.Determine peak output voltage and peak load current and diode peak reverse voltage	4	L3	CO1
	c	Explain how Zener diode works as voltage regulator considering no-load and full load conditions	8	L2	CO1
		Module–2			
Q.3	a	Explain BJT Current Amplifier for increasing and decreasing IB levels	8	L2	CO2
	b	Calculate IC, IE and for a Transistor that has =0.98 and IB=100 A	6	L3	CO2
	c	Explain Common Base Input Characteristics of BJT	6	L2	CO2
		OR			
Q.4	a	Explain the Construction of Enhancement MOSFET	8	L2	CO2
	b	Explain the working of N-Channel JFET	6	L2	CO2
	c	Mention the advantages of FET over BJT	6	L2	CO2
		Module–3			
Q.5	a	Define the following with respect to Op-amp i) Input offset voltage ii)Input bias Current iii) CMRR iv)Slew rate	8	L2	CO3
	b	Explain block diagram of Typical Op-amp	6	L2	CO3
	c	Define Op-amp. Mention any 5 ideal characteristics of an Op-amp	6	L2	CO3
		OR			
Q.6	a	Explain the working of Op-amp connected as integrator, also draw the output waveform	8	L2	CO3
	b	Explain Inverting and Non-Inverting Amplifier	6	L2	CO3
	c	Explain the Equivalent Circuit of an Op-amp	6	L2	CO3

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Module–4					
Q.7	**a**	Convert Decimal to Binary i) 41 ii) 153 iii) 0.6875 iv)0.513	**8**	**L2**	**CO4**
	b	Write down Axiomatic Definition of Boolean Algebra	**6**	**L1**	**CO4**
	c	Design a Half-adder using basic gates	**6**	**L2**	**CO4**
OR					
Q.8	**a**	Using Boolean theoremprove that i)(X+Y) (X+Z) = X+YZ ii)XY+XZ+YZ'=XZ+YZ'	**8**	**L2**	**CO4**
	b	Solve the following Subtract using 10's Complement 3250-72532 Subtract using 2's Complement 1010100-1000100	**6**	**L2**	**CO4**
	c	Explain the working of full adder	**6**	**L2**	**CO4**
Module–5					
Q.9	**a**	With a neat diagram, explain the working of LVDT	**8**	**L2**	**CO5**
	b	Explain the working principle of Capacitive Transducer	**6**	**L2**	**CO5**
	c	With neat block diagram explain AM Super Heterodyne Receiver	**6**	**L2**	**CO5**
OR					
Q.10	**a**	With neat block diagram explain the working of Communication system	**8**	**L2**	**CO5**
	b	Define Modulation, Explain the need of Modulation	**6**	**L2**	**CO5**
	c	Explain the differences between 4G and 5G networks.	**6**	**L2**	**CO5**

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