CBCS SCHEME

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BESCK204C

Second Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026

Introduction to Electronics and Communication

Time: 3 hrs. Max. Marks: 100

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

		Module – 1	M	L	C
Q.1	a.	What is rectifier? Explain full wave bridge rectifier with capacitor filter.	8	L2	CO1
	b.	Explain the block diagram of dc power supply and mention the functions of each block.	8	L2	CO1
	c.	Classify the different types of amplifiers.	4	L2	CO1
		OR			
Q.2	a.	Explain the operation of voltage regulator with neat circuit diagram.	8	L2	CO1
	b.	Illustrate the overall gain of negative feedback amplifier with a suitable block diagram.	8	L2	CO1
	c.	Outline the operation of voltage doubler with neat circuit diagram.	4	L2	CO1
		Module – 2			
Q.3	a.	Explain the operation of ladder network oscillator with neat circuit diagram.	8	L2	CO2
	b.	Infer astable multivibrator circuit with necessary equations.	8	L2	CO2
	c.	In weigh bridge oscillator if $C_1 = C_2 = 200$ nF. Solve the frequency of oscillation, when $R_1 = R_2 = 4$ KΩ	4	L3	CO2
		OR			
Q.4	a.	Explain the following with respect to operational amplifiers: i) Differentiator ii) Integrator.	8	L2	CO2
	b.	Outline the ideal characteristics of an operational amplifiers.	8	L2	CO2
	c.	For the following given data. Solve the summing amplifier where $R_f = 10$ KΩ, $R_1 = 1$ KΩ, $R_2 = 2$ KΩ, $R_3 = 3$ KΩ with $V_1 = 2$ V, $V_2 = 4$ V, $V_3 = 6$ V.	4	L3	CO2
		Module – 3			
Q.5	a.	Solve the following: i) $(B65F)_{16} = (?)_{10}$ ii) $(10110001101011.111100000110)_2 = (?)_8$ iii) $(630.4)_8 = (?)_{10}$ iv) $(673.124)_8 = (?)_2$	8	L3	CO3

	b.	Make use of Boolean algebra, simplify the following and draw the logic circuit diagram: i) $(X+Y)(X+Z) = X + YZ$ ii) $XY + XZ + YZ' = XZ + YZ'$	6	L3	CO3
	c.	Solve Demorgan's theorem for two variables.	6	L3	CO3
		OR			
Q.6	a.	Develop full adder circuit with its truth table and write the expression for sum and carry.	8	L3	CO3
	b.	Solve the following: i) $(1010100)_2 - (1000100)_2$ using 2's compliment ii) $(4456)_{10} - (34324)_{10}$ using 10's compliment method	6	L3	CO3
	c.	Develop combinational logic circuit with an example.	6	L3	CO3
		Module – 4			
Q.7	a.	Compare RISC and CISC processors.	8	L2	CO4
	b.	Summarize microprocessor and microcontroller.	6	L2	CO4
	c.	List out the major application areas of embedded systems.	6	L1	CO4
		OR			
Q.8	a.	Compare Transducer, Sensor and Actuators.	8	L2	CO4
	b.	Explain the classification of embedded systems.	6	L2	CO4
	c.	What is 7-segment LED display?	6	L1	CO4
		Module – 5			
Q.9	a.	Analyze the different multiple access technique in the digital communication in detail.	8	L4	CO5
	b.	Explain the modern communication systems with a neat block diagram.	6	L2	CO5
	c.	Define Modulation. What is the need of modulation?	6	L1	CO5
		OR			
Q.10	a.	Analyze the benefits of digital communication systems over analog communication systems.	8	L4	CO5
	b.	Explain the following with the help of neat waveforms: i) ASK ii) FSK.	6	L2	CO5
	c.	List the functions of hard wired channel and soft wired channel.	6	L1	CO5

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