

CBCS SCHEME

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BESCK104C

First Semester B.E./B.Tech. Degree Examination, June/July 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.
3. M : Marks, L: Bloom's level, C: Course outcomes.*



Module – 1				M	L	C
Q.1	a.	Draw the block diagram of DC power supply and explain the individual blocks.		8	L2	CO1
	b.	With a neat block diagram, derive the expression for overall gain of a negative feedback amplifier.		7	L3	CO1
	c.	A main transformer having a turns ratio of 44:1 is connected to a 220 V r.m.s main supply. If the secondary output is applied to a halfwave rectifier, determine the peak voltage that will appear across a load. Assume diode drop voltage = 0.6 V.		5	L3	CO1
OR						
Q.2	a.	With a neat circuit diagram and waveform, explain the working of bridge rectifier.		8	L2	CO1
	b.	What is voltage regulator? With neat circuit diagram, explain the operation of a voltage regulator using zener diode.		7	L2	CO1
	c.	With a neat block diagram, explain multi-stage amplifiers.		5	L2	CO1
Module – 2						
Q.3	a.	With circuit diagram, explain the operation of an Wienbridge oscillator.		8	L2	CO2
	b.	Define the following operational amplifier parameters value: i) Closed loop voltage gain ii) Input Resistance iii) Open loop voltage gain iv) Input offset voltage		8	L2	CO2
	c.	Determine the frequency of oscillation of a ladder network oscillator when $C = 10 \text{ nF}$ and $R = 10 \text{ K}\Omega$.		4	L2	CO2
OR						
Q.4	a.	Explain the single-stage astable oscillator with circuit diagram.		8	L2	CO2
	b.	What is Oscillator? And mention condition for oscillations.		6	L2	CO2
	c.	Draw the circuit diagram and input and output waveform of the following operational amplifier circuits: i) Differentiators ii) Summing Amplifier		6	L2	CO2

Module – 3

Q.5	a.	Implement full adder using two half adders and one OR gate, write the equations for sum and c_{out} .	8	L3	CO3
	b.	Convert the following numbers to its equivalent numbers and show the steps: i) $3A6.C58D_{(16)} = ?_{(8)}$ ii) $0.6875_{(10)} = ?_{(2)}$	6	L2	CO3
	c.	Subtract using $(r - 1)$'s complement method i) $4456_{(10)} - 34234_{(10)}$	6	L2	CO3

OR

Q.6	a.	Implement half adder circuit using basic gates, write the equations for sum and carry.	8	L2	CO3
	b.	State and prove De-Morgan's theorem with its truth table.	6	L2	CO3
	c.	Subtract using r 's complement method i) $(1010100)_2 - (1000100)_2$	6	L2	CO3

Module – 4

Q.7	a.	What is an embedded system? Compare embedded systems with general computer system.	8	L2	CO4
	b.	What is the difference between RISC and CISC processors?	6	L2	CO4
	c.	Write a short note on i) Transducers ii) Sensors	6	L2	CO4

OR

Q.8	a.	Explain the classification of embedded system based on generation, complexity and performance.	10	L2	CO4
	b.	Explain the working of 7-segment LED used to display the data.	10	L2	CO4

Module – 5

Q.9	a.	Draw the block diagram of basic communication system and briefly explain the individual blocks.	10	L2	CO5
	b.	Explain Multiple Access Techniques in communication system.	10	L2	CO5

OR

Q.10	a.	Define Amplitude and frequency modulation, sketch AM and FM waveform.	10	L2	CO5
	b.	With a neat diagram, explain ASK (Amplitude Shift Keying), FSK (Frequency Shift Keying) and PSK (Phase Shift Keying) modulation schemes.	10	L2	CO5
