

# MAKE-UP EXAM

BESCK104C/BESCKC104



## First Semester B.E./B.Tech. Degree Examination, Nov./Dec. 2023 Introduction to Electronics & Communication

Max. Marks: 100

- Note:** 1. Answer any FIVE full questions, choosing ONE full question from each module.  
2. VTU Formula Hand Book is permitted.  
3. M : Marks , L: Bloom's level , C: Course outcomes.

Module - 1			M	L	C
Q.1	a.	With a neat circuit diagram and waveform, explain the working of Bridge rectifier with filter.	8	L2	CO1
	b.	With a neat block diagram, explain the working of DC power supply. Also mention, the principle components used in each block.	7	L2	CO1
	c.	A 6V Zener diode has a maximum rated power dissipation of 500mW. If the diode is to be used in a simple regulator circuit to supply a regulated 6V to a load of 500Ω. Determine a suitable value of series resistor for a supply of 12V.	5	L3	CO1
<b>OR</b>					
Q.2	a.	With a neat block diagram, derive the expression for overall gain of a Negative feedback amplifier.	6	L2	CO1
	b.	Define the following with respect to amplifier i) Input resistance ii) Amplifier gain iii) Bandwidth iv) Phase shift.	8	L2	CO1
	c.	What are multistage amplifiers? Write different methods used for interstage coupling.	6	L2	CO1
<b>Module - 2</b>					
Q.3	a.	Explain the conditions for sustained oscillations. Determine the frequency of oscillation of a three stage ladder network in which C = 10nF and R = 10KΩ	6	L3	CO2
	b.	With suitable circuit diagram, explain single stage Astable multivibrator using operational Amplifier.	7	L2	CO2
	c.	With a neat circuit diagram, describe the operation of a crystal controlled oscillator.	7	L2	CO2
<b>OR</b>					
Q.4	a.	Define the following with respect to operational amplifier and write their typical values. i) Open loop voltage gain ii) Input offset voltage iii) Slew rate iv) Full power Bandwidth	8	L2	CO2
	b.	Sketch the circuits of each of the following based on use of operational amplifier, i) Differentiator ii) Integrator iii) Voltage follower	7	L1	CO2
	c.	Write a note on Ideal characteristics of an operational amplifier.	5	L1	CO2

Module – 3					
Q.5	a.	State and prove Demorgan's theorem with its truth table.	7	L1	CO3
	b.	i) Subtract using 10's compliment method M = 72532, N = 03250 ii) Subtract using 2's complement method M = 1010100, N = 1000100	6	L3	CO3
	c.	With the help of truth table ; explain the operation of full adder with sum and carry expressions, along with circuit diagram.	7	L2	CO3
OR					
Q.6	a.	Convert i) $(306.D)_{16} = (?)_2$ ii) $(41)_{10} = (?)_2$ iii) Compute One's (1's) complement of $(11101)_2$ iv) Compute 9's compliment of $(0.3267)_{10}$	8	L3	CO3
	b.	Simplify the following : i) $x(x' + y)$ ii) $xy + x'z + yz$	6	L3	CO3
	c.	Mention any 3 theorem of Boolean Algebra and prove each of them.	6	L1	CO3
Module – 4					
Q.7	a.	Compare embedded system and general computing system (any 5)	6	L2	CO4
	b.	List the comparison between Microprocessor and Microcontroller.	6	L2	CO4
	c.	Write a note on classification of embedded system, also provide application of embedded system.	8	L2	CO4
OR					
Q.8	a.	Explain the differences between CISC and RISC processors.	6	L2	CO4
	b.	With a neat block diagram, explain an instrumentation and control system.	8	L2	CO4
	c.	Write a short note on : i) Sensors ii) Actuators iii) 7 segment LED Display.	6	L2	CO4
Module – 5					
Q.9	a.	Brief about modern communication system with its block diagram.	8	L2	CO5
	b.	Consider the following binary data 1100101 and sketch the ASK, FSK and PSK modulated waveforms.	6	L3	CO5
	c.	Explain with a neat diagram, the concept of Radio wave propagation and its different types.	6	L2	CO5
OR					
Q.10	a.	List the advantages of Digital communication over analog communication.	6	L2	CO5
	b.	Describe about radio signal transmission and multiple access techniques.	7	L2	CO5
	c.	Write a note on different types of a modulation and briefly describe each in detail.	7	L2	CO5