MAKE-UP EXAM

USN | | | | | | | | | |

BESCK104C/BESCKC104

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

Time: 3 hrs. 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
		OR			
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
		Module – 2			
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
		OR			
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

* * * * *