CBCS SCHEME

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BESCK104C/ BESCKC104

First Semester B.E./B.Tech. Degree Examination, Jan./Feb. 2023
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. ***VTU Formula Hand Book is permitted.***
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.	Draw the circuit diagram of voltage regulation and explain the operation.	6	L2	CO1
	c.	An amplifier produces an output voltage of 2V for an input of 50mV. If the input and output currents in this condition are 4mA and 200mA respectively. Find : i) The voltage gain ii) The current gain iii) The power gain.	6	L3	CO1
		OR			
Q.2	a.	With a neat circuit diagram and waveform. Explain the working operation of a full wave bridge rectifier.	8	L2	CO1
	b.	Draw the circuit diagram of voltage doubler and the working operation.	6	L2	CO1
	c.	Discuss briefly a Negative feedback amplifier with block diagram.	6	L1	CO1
		Module – 2			
Q.3	a.	With circuit diagram, explain the operation of an wien bridge oscillator.	8	L2	CO2
	b.	Define the following operational amplifier parameters value. i) Open loop voltage gain ii) Output Resistance iii) Slew Rate.	6	L1	CO2
	c.	Draw the circuit diagram and input and output waveform of the following operational amplifier circuits i) Differentiators ii) Integrator.	6	L1	CO2
		OR			
Q.4	a.	Explain the single state astable oscillator with circuit diagram.	8	L1	CO2
	b.	What is oscillator? And mention condition for oscillations.	6	L1	CO2
	c.	Explain the operation of summing amplifier using operational amplifier and write the output equation.	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) $(10110001101011.111100000)_2 = (?)_8$ ii) $(10110001101011.11110010)_2 = (?)_{16}$ iii) $(1010.011)_2 = (?)_{10}$	**6**	**L2**	**CO3**
	c.	Using basic Boolean theorems prove i) $(x + y)(x + z) = x + yz$ ii) $xy + x\bar{z} + y\bar{z} = xz + y\bar{z}$	**6**	**L3**	**CO3**
		OR			
Q.6	**a.**	Express the Boolean function i) $F = A + \bar{B}C$ in a sum of minterms form ii) $F = xy + \bar{x}z$ in a product of maxterms form.	**8**	**L2**	**CO3**
	b.	Subtract the following using 10's complement i) $(72532 - 3250)_{10}$ ii) $(3250 - 72532)_{10}$	**6**	**L2**	**CO3**
	c.	Write the step by step procedure to design a combinational circuit.	**6**	**L1**	**CO3**
		Module – 4			
Q.7	**a.**	What is an Embedded system? Compare Embedded systems with general computer systems.	**8**	**L2**	**CO4**
	b.	Mention the classification of Embedded system based on complexity and performance.	**6**	**L1**	**CO4**
	c.	Write a short note on – 7-segment LED display.	**6**	**L2**	**CO4**
		OR			
Q.8	**a.**	Discuss the typical embedded system elements.	**8**	**L2**	**CO4**
	b.	What is the difference between RISC and CISC processors?	**6**	**L1**	**CO4**
	c.	Write a short note on : i) Transducers ii) Sensors.	**6**	**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.	Discuss the types of communication systems.	**5**	**L2**	**CO5**
	c.	List the advantages of digital communication over analog communication.	**5**	**L1**	**CO5**
		OR			
Q.10	**a.**	Define Amplitude and Frequency modulation. Sketch AM and FM waveform.	**10**	**L1**	**CO5**
	b.	Write a short note on : Amplitude Shift Keying (ASK) modulator and demodulator.	**10**	**L2**	**CO5**

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