	MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE Dept. of Electronics and Communication Engineering 1st Internal Assessment 1st Semester	**Sub. Name: Introduction to Electronics & Communication (BESCK104C)** Schedule: 10/11/2023 and 2.30 – 3:45 pm **Total Marks: 30** Faculty: Dr. BK, RH, LM, SR, HRN, SNG

Instructions to students: Answer any TWO Full questions selecting at least ONE from each Part

Q#		Question Description	M	BTL	COs
		Part-A			
1	a	With a block diagram, **explain** the working of DC power supply. Also mention the principal components used in each block.	8	L2	CO1
	b	What is an amplifier? **Explain** the types of amplifier. An amplifier produces an output voltage of 2V for an input of 50mV. If the input and output currents in this condition are, respectively, 4mA and 200mA, **Determine** a) voltage gain b) current gain c) power gain	4 3	L2 L3	CO1 CO2
2	a	With neat circuit diagram and waveforms **explain** full wave bridge rectifier.	8	L2	CO1
	b	With relevant equations and diagram, **explain** the concept of negative feedback. An amplifier with negative feedback applied has an open-loop voltage gain of 50 and one-tenth of its output is fed back to the input. **Determine** the overall voltage gain with negative feedback applied.	4 3	L2 L3	CO1 CO2

Part-B					
3	a	**Explain** the operation of single stage Astable multivibrator with its circuit diagram.	8	L2	CO2
	b	**Explain** the conditions for oscillations. **In** Wien bridge oscillator if $C_1=C_2=100nF$, **Determine** the frequency of oscillations when $R_1=R_2=1K\Omega$.	2 5	L2 L3	CO1 CO2
4	a	**Explain** the operation of three-stage ladder RC network oscillator with neat circuit diagram	8	L2	CO2
	c	**Explain** the principal types of multivibrator. **In** three-stage ladder RC network oscillator if C=10nF and R=10KΩ, **Determine the** frequency of oscillation.	2 5	L2 L3	CO1 CO2

	MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE **Dept. of Electronics and Communication Engineering** **1st Internal Assessment** **1st Semester**	**Sub. Name: Introduction to Electronics & Communication (BESCK104C)** Schedule: 07/12/2023 and 2.30 – 3:45 pm **Total Marks: 30** Faculty: Dr. BK, RH, LM, SR, HRN, SNG

Instructions to students: Answer any TWO Full questions selecting at least ONE from each Part

Q#		Question Description	M	BTL	COs
		Part-A			
1	a	**Explain** the operation of the following op-amp applications (i) Voltage follower (ii) comparator	8	CO1	L2
	b	(i) **Define** the following op-amp parameters also give its typical values: a) Open loop voltage gain b) Input offset voltage (ii) During measurements on an operational amplifier under open-loop conditions, an output voltage of 12 V is produced by an input voltage of 1 mV. **Determine** the open-loop voltage gain expressed in dB.	4 3	CO2	L2 L3
		Or			
2	a	**Explain** the operation of the following op-amp applications (i) Integrator (ii) summing amplifier	8	CO1	L2
	b	(i) **Define** the following op-amp parameters also give its typical values: a) Input resistance b) slew rate (ii) An operational amplifier has an input resistance of 2 MΩ. **Determine** the input current when an input voltage of 5 mV is present	4 3	CO2	L2 L3
		Part-B			
3	a	Apply the knowledge of number system to **Solve** the following: **i. $(255)_{10} = (\ )_2 = (\ )_8 = (\ )_{16}$ ii. $(10010011)_2 = (\ )_{10} = (\ )_8 = (\ )_{16}$**	8	CO3	L2
	b	Apply the knowledge of number system to **Solve** the following: Perform subtraction on the given binary numbers using 1's complement method: **(a) 10011 - 10010 (b) 100010 – 100110** Perform subtraction on the given binary numbers using 2's complement method: **(a) 1001 - 110101 (b) 101000 - 10101**	7	CO3	L3
		or			
4	a	Apply the knowledge of number system to **Solve** the following: Subtract using **(r – 1)'s** complement method **a) $4456_{(10)} - 34234_{(10)}$** Subtract using **r's** complement method **a) $1010100_{(2)} - 1000100_{(2)}$**	8	CO3	L2
	c	Apply the knowledge of number system to **Solve** the following: **i) $(623)_8 = (\ )_{10} = (\ )2 = (\ )_{16}$ ii) $(2AC5)_{16} = (\ )_{10} = (\ )_8 = (\ )_2$**	7	CO3	L3

	MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE Dept. of Electronics And Communication Engineering 3rd Internal Assessment 1st Sem.	Sub. Name : Introduction to electronics and communication(22BESCK104C) Schedule: 09/01/2024 and 2.15PM –3.30PM Total Marks: 30 Faculty: SR,SNG,LM,HRN,Dr.BK,RH

Instructions to students

Note: Answer any TWO questions selecting at least ONE from each Part

Q.No		PART-A	M	BTL	COs
1	a	**Implement** half adder circuit with its truth table and write the expressions for sum and carry.	8	C03	L3
	b	**Discuss** the typical Embedded system Elements.	7	C02	L2
		OR			
2	a	**Implement** full adder circuit with its truth table and write the expressions for sum and carry.	8	C03	L3
	b	**Discuss** the classification of Embedded system based on Complexity and Performance.	7	C02	L2
		PART-B			
3	a	**Compare** Embedded system and General computing system.	8	C02	L2
	b	**Analyze** the working of basic communication system with a neat block diagram.	7	C04	L4
		OR			
4	a	**Compare** i)RISC and CISC ii)Microcontroller and Microprocessor.	8	C02	L2
	b	**Analyze** the operation of Analog and Digital Communication systems, Differentiate between the two systems.	7	C04	L4