

USN						BESCK104C/ BESCKC104

## First Semester B.E/B.Tech. Degree Supplementary Examination, June/July 2024 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. M: Marks, L: Bloom's level, C: Course outcomes.

a. Describe full wave bridge rectifier with relevant waveform? Memorize its 7 L2 CO1 measurable parameters.  b. Explain how zener diode acts as voltage regulator. Discuss line and load 7 L2 CO1 regulation.  c. Illustrate the difference between zener and avalanche breakdown.  6 L2 CO1  OR  2 a. Discuss half wave rectifier with capacitor filter. Memorize ripple factor.  7 L2 CO1  b. Describe with neat sketch and working operation of RC coupled amplifier and specify frequency response with parameters.  c. Discriminate half wave rectifier and full wave rectifier.  6 L2 CO1  Module – 2  3 a. Describe the operation of crystal oscillator and state its applications.  7 L2 CO2  b. Discuss any two applications of OPAMP.  7 L2 CO2  c. State ideal and practical characteristics of OPAMP.  6 L2 CO2  OR  4 a. Explain the concept for sustained oscillations of ladder type network 7 L2 CO2 oscillator.  b. Define multivibrator and also discuss single stage astable oscillator using 7 L2 CO2 OPAMP.  c. Describe various blocks of OPAM and discuss its measurable parameter.  6 L2 CO2  Module – 3						
measurable parameters.  b. Explain how zener diode acts as voltage regulator. Discuss line and load 7			Module – 1	M	L	C
regulation.  c. Illustrate the difference between zener and avalanche breakdown.  OR  Discuss half wave rectifier with capacitor filter. Memorize ripple factor.  7	1	a.		7	L2	CO1
OR  2 a. Discuss half wave rectifier with capacitor filter. Memorize ripple factor.  5 b. Describe with neat sketch and working operation of RC coupled amplifier and specify frequency response with parameters.  6 c. Discriminate half wave rectifier and full wave rectifier.  6 l.2 CO1  Module - 2  3 a. Describe the operation of crystal oscillator and state its applications.  7 l.2 CO2  b. Discuss any two applications of OPAMP.  7 l.2 CO2  C. State ideal and practical characteristics of OPAMP.  6 l.2 CO2  OR  4 a. Explain the concept for sustained oscillations of ladder type network oscillator using oPAMP.  b. Define multivibrator and also discuss single stage astable oscillator using OPAMP.  c. Describe various blocks of OPAM and discuss its measurable parameter.  6 l.2 CO2  Module - 3  5 a. i) Convert (725.25) <sub>8</sub> to () 10 and ()2		b.		7	L2	CO1
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specify frequency response with parameters.  c. Discriminate half wave rectifier and full wave rectifier.  6	2	a.	Discuss half wave rectifier with capacitor filter. Memorize ripple factor.	7	L2	CO1
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a. Describe the operation of crystal oscillator and state its applications.  b. Discuss any two applications of OPAMP.  c. State ideal and practical characteristics of OPAMP.  6 L2 CO2  OR  4 a. Explain the concept for sustained oscillations of ladder type network oscillator.  b. Define multivibrator and also discuss single stage astable oscillator using OPAMP.  c. Describe various blocks of OPAM and discuss its measurable parameter.  6 L2 CO2  Module – 3  5 a. i) Convert (725.25) <sub>8</sub> to () <sub>10</sub> and () <sub>2</sub> ii) Determine the value of x if (211) <sub>x</sub> = (152) <sub>8</sub> b. Discuss the different theorems and postulates of Boolean Algebra and prove each of them with truth table.  c. Find the complement of functions F <sub>1</sub> and F <sub>2</sub> i) F <sub>1</sub> (x, y, z) = x'yz' + x'y'z		C.	Discriminate half wave rectifier and full wave rectifier.	6	L2	CO1
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C. State ideal and practical characteristics of OPAMP.  OR  L2 CO2  State ideal and practical characteristics of OPAMP.  OR  L2 CO2  Describe the concept for sustained oscillations of ladder type network oscillator.  Define multivibrator and also discuss single stage astable oscillator using OPAMP.  C. Describe various blocks of OPAM and discuss its measurable parameter.  Module – 3  State ideal and practical characteristics of OPAMP.  L2 CO2  Module – 3  State ideal and practical characteristics of OPAMP.  L2 CO2  Module – 3  State ideal and practical characteristics of OPAMP.  L2 CO2  Module – 3  State ideal and practical characteristics of OPAMP.  L2 CO2  Module – 3  State ideal and practical characteristics of OPAMP.  L2 CO3  ii) Describe various blocks of OPAM and discuss its measurable parameter.  Module – 3  State ideal and practical characteristics of OPAMP.  L2 CO3  iii) Determine the value of x if (211) <sub>x</sub> = (152) <sub>8</sub> Discuss the different theorems and postulates of Boolean Algebra and prove each of them with truth table.  C. Find the complement of functions F <sub>1</sub> and F <sub>2</sub> i) F <sub>1</sub> (x, y, z) = x'yz' + x'y'z  CO3	3	a.	Describe the operation of crystal oscillator and state its applications.	7	L2	CO2
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<ul> <li>b. Discuss the different theorems and postulates of Boolean Algebra and prove each of them with truth table.</li> <li>c. Find the complement of functions F<sub>1</sub> and F<sub>2</sub></li> <li>i) F<sub>1</sub>(x, y, z) = x'yz' + x'y'z</li> <li>6 L3 CO3</li> </ul>	5	a.	i) Convert (725.25) <sub>8</sub> to ( ) <sub>10</sub> and ( ) <sub>2</sub>	7	L3	CO3
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		OR			
6	a.	Simplify and realize the expression using NAND and NOR $F = AB + AC + BD + CD$ .	7	L3	CO3
	b.	Implement full adder circuit with truth table and deduce expression for sum and carry.	7	L2	CO3
	c.	Implement EX-OR and EX-NOR using NAND.	6	L2	CO3
		Module – 4		I	
7	a.	Define general computing system. Describe its classification in contrast to embedded system.	7	L2	CO4
	b.	Compare microprocessor and microcontroller with silent features.	7	L2	CO4
	c.	Explain the following: i) Transducers ii) Actuators.	6	L2	CO4
		OR			
8	a.	Explain various elements of embedded systems and state its applications.	7	L2	CO4
	b.	Distinguish RISC and CISC.	6	L2	CO4
	c.	Explain: i) 7 segment LED display ii) Sensor.	7	L2	CO4
		Module – 5			
9	a.	Explain the concept of AM wave and interpret MI and transmission efficiency.	7	L2	CO5
	b.	Discuss the various modes of radio wave propagation.	7	L2	CO5
	c.	Describe ASK used in communication system.	6	L2	CO5
		OR			
10	a.	Discuss frequency modulation in communication system and describe MI and frequency deviation.	7	L2	CO5
	b.	Describe the various block of communication system.	6	L2	CO5
	c.	Explain PSK modulation technique in communication system.	7	L2	CO5

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