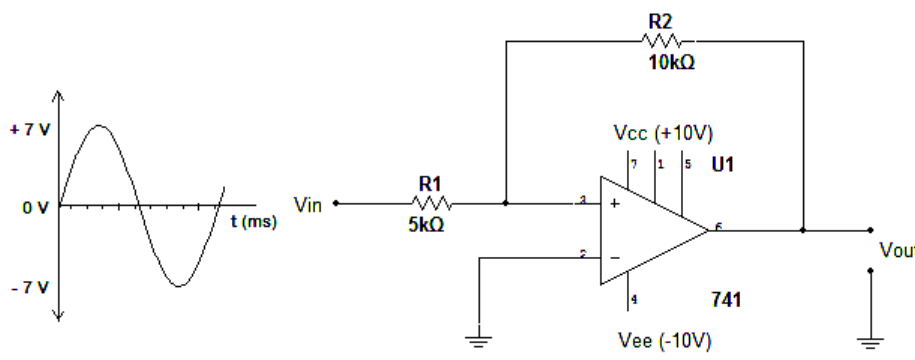


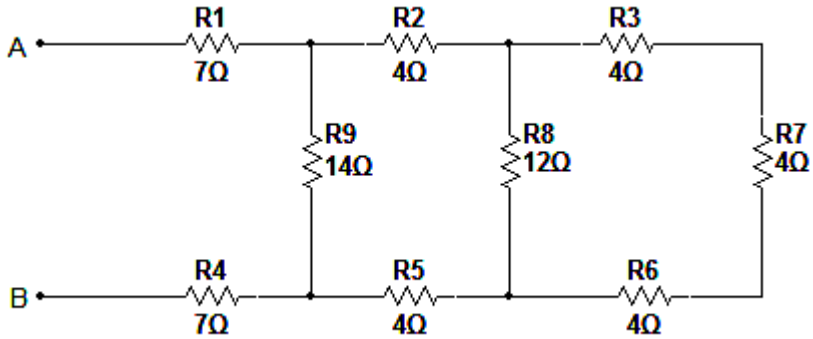
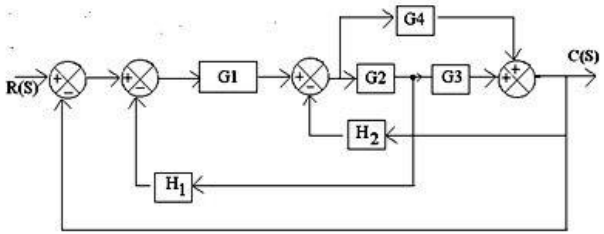
MODEL QUESTION PAPER

Subject code: 2110016

Subject Name: Basic Electronics

Remembrance based sample questions		
<i>Question No</i>	<i>Question Description</i>	
A1	Recall the classical laws of electrical science	Ohms law
A2		Coulomb's law
A3		Kirchhoff's law
A4	Recall the definitions of the technical terms with reference to Operational amplifiers (OP-AMPs)	Common Mode Rejection Ratio
A5		Slew rate
A6		Input offset voltage
A7		Gain Bandwidth product
A8	Can you recall the different types of signal transmission medium	
A9	List the attributes of EM Wave propagation in different layers of the atmosphere, clearly mentioning the affects of propagation pertaining to each of the layer:	
A10	What is the relationship between free space permeability and free space permittivity and, what is the impedance of free space.	

Understanding based sample questions	
Question no	Question description
B1	Recall and differentiate between an open loop and close loop control system.
B2	In digital systems, what do you understand by a digital combination circuit and a sequential circuit and, can you spot the difference between the two circuits.
B3	What do you understand by noise in an electrical communication system, can you recall the origins of different sources of noise and elaborate on each of them with suitable example?
B4	What do you understand by amplitude modulation, can you graph the ideal AM waveform, and waveforms under 50%. and 150% amplitude modulation signal, clearly conveying the affects of such levels of modulation on a system.
B5	What do you understand by base 2, 8, 10 and 16? Can you affect conversion of the following given number from one number system to the other. i. $(1011)_2 = ()_{16}$ ii. $(735)_8 = ()_{10}$
B6	What do you understand by the term Dantennadz and Dzpolarizationdz in an electronic communication system? Can you recall and differentiate antennas used in modern communications and, what is the importance of polarization in modern communication?
B7	What do you understand by signal sampling, can you elaborate its process and conditions, and where is it used?
B8	Recall and Differentiate between a Linear and Non linear network in a electrical circuit.
B9	Justify the advantages of a Digital system over an Analog system in an electrical communication system.
B10	<p>For the input signal shown, can you graph the output waveform for the given circuit?</p> 

Application and Analysis sample questions	
Question no	Question description
C1	Design a simple digital circuit for the given Boolean equation mentioned below using NAND gate only; $C \quad C \quad C \quad C \quad .$
C2	Analyze the given circuit shown below using the laws of series-parallel resistors to find the equivalent resistance appearing across terminals A and B. 
C3	Design a simple voltage comparator using Op-Amp which is capable of performing the following function: 1) When input signal is greater than reference voltage the op-amp output is LOW 2) Draw the waveforms for the above mentioned condition – op-amp output LOW Please Note: Reference voltage can be varied - is adjustable/variable
C4	Design a 3 bit synchronous counter, clearly detailing the design steps.
C5	Conceive and Demonstrate the application of an op-amp as Integrator in an electronic circuit system. Draw the circuit diagram clearly embodying the op-amp as an integrator in the conceived electronic circuit system with elaborations.
C6	Outline the role of Digital control system in following applications i. Aircraft control ii. Missile Guidance System.
C7	Apply the knowledge of block reduction techniques you have studied to reduce the given block diagram and arrive at one single block <i>equivalent</i> diagram. 
C8	The transfer function of a electrical system housed in a black box is given below: $\frac{C(s)}{R(s)} = \frac{\quad}{\quad}$ Compute the following parameters based on the knowledge of circuit and control theory: i. Natural Frequency

	ii.	Damping Factor
	iii.	Rise time
	iv.	Delay time
	v.	Peak time