GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– I & II (NEW) EXAMINATION – WINTER 2019

Subject Code: 2110016   **Date: 06/01/2020**
Subject Name: Basic Electronics
Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**
Instructions:
1. **Question No. 1 is compulsory. Attempt any four out of remaining Six questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

		Mark
Q.1	**Objective Question (MCQ)**	
(a)		**07**

1. Which are the logic gates known as a Universal Gates?
   (a) XOR, AND, (b) AND, OR, (c) NAND, NOR, (d) XNOR,OR
2. In most of modern IC op-amps, the 741 requires _____ power supplies
   (a) 1   (b) 2   (c) 3   (d) 4
3. PAM stands for
   (a) Pulse And Modulation   (b) Pulse Analog Modulation
   (c) Pulse Altitude Modulation (d) Pulse Amplitude Modulation
4. Which is a typical application of digital signal processing? '
   (a) Noise elimination (b) Music signal processing
   (c) Image processing (d) All of the above
5. The first cellular systems were _____.
   (a) Analog   (b) Digital   (c) Hybrid   (d) None of Above
6. Conductance is expressed in terms of
   (a) ohm / m   (b) m / ohm   (c) mho / m   (d) mho.
7. A system is linear if _____ is true.
   (a) KVL (b) KCL (c) Superposition theorem (d) Ohm's law

(b)   **07**
1. Wireless mobile cells are _____ in shape
   (a) pentagon (b) hexagon (c) circular (d) square
2. Which of the following system has feedback network?
   (a) Open loop   (b) Closed loop
3. Out of following signals _____ is an even signal.
   (a) Cosine wave   (b) Sine wave
   (c) Triangle wave   (d) None of the above.
4. A Flip Flop has got a memory of
   (a) 1 bit (b) 2 bit (c) 4 bit (d) 8 bit
5. In an Electrical system, the flow of current follows:
   (a) De Morgan's law (b) Boyle's law (c) Curie's law (d) Ohm's law
6. A radio station transmitting AM wave with 1 MHz frequency band having a wavelength of _____.
   (a) 3 meter, (b) 300 meter, (c) 0.3 meter, (d) 30 meter
7. A circuit designed to increase the level of its input signal is called:
   (a) an amplifier (b) a modulator (c) an oscillator (d) a receiver

Q.2	**(a)**	Draw the various rules to reduce/modification of Block Diagram system.	**03**
	(b)	Write a short note on ammeter and voltmeter.	**04**
	(c)	Explain Kirchhoff's Voltage law with suitable example.	**07**
Q.3	**(a)**	Give the classification of electric network.	**03**
	(b)	State and explain Thevenin's theorem.	**04**
	(c)	Explain Node and Mesh Analysis with Controlled Sources., with example.	**07**
Q.4	**(a)**	Explain current to voltage convertor.	**03**
	(b)	Compare open loop and closed loop system.	**04**
	(c)	Explain ideal characteristics of ideal Op-Amp in detail.	**07**
Q.5	**(a)**	State and prove De-Morgan's theorems.	**03**
	(b)	Classify network topologies and draw each one of them.	**04**
	(c)	Give different types of flip flops. Explain any one of flip flop in detail.	**07**
Q.6	**(a)**	Draw only functional block diagram of signal processing system.	**03**
	(b)	What do you understand about multiplexing? Explain any one of the multiplexing technique.	**04**
	(c)	Explain in detail pulse modulation with necessary diagrams.	**07**
Q.7	**(a)**	Define waveguide, transmission lines and antenna.	**03**
	(b)	Classify the standard on 2G and 3G.	**04**
	(c)	Draw and explain the block diagram of superheterodyne AM radio receiver.	**07**

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