Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– 1st / 2nd EXAMINATION (NEW SYLLABUS) – WINTER 2018

Subject Code: 2110016   **Date: 08/01/2019**
Subject Name: Basic Electronics
Time:10:30 AM TO 1:00 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)		Choose an appropriate option from following.	**07**

1. For a maximum transfer of power, internal resistance should be
   a.) Equal to load resistance   b.) Less than load resistance
   c.) Greater than load resistance   d.) None of the above.
2. Ideal voltage source should have
   a.) Large Value of EMF   b.) Small value of EMF
   c.) Zero source resistance   d.) Infinite source resistance.
3. Which of the following is bilateral element?
   a.) Constant current source   b.) Constant voltage source
   c.) Capacitor   d.) None of the above
4. CMRR of an OP-AMP is-
   a.) Finite   b.) Zero
   c.) Infinite   d.) unity
5. Which one is the linear application design by OP-AMP
   a.) Integrator   b.) Voltage regulator
   c.) Multiplier   d.) Comparator
6. In binary system, decimal 1 can be written as
   a.) 0001   b.) 0010
   c.) 0100   d.) 1000
7. A BYTE stand for a string of _____ BITS
   a.) Two   b.) Four
   c.) Eight   d.) Twelve

(b) Choose an appropriate option from following.   **07**
1. Flip flop circuit is _____
   a.) Unstable   b.) Multistable
   c.) Monostable   d.) Bistable
2. Which frequency is higher in FM?
   a.) Carrier frequency   b.) Information signal frequency
   c.) Both are equal   d.) None of these
3. Which of the following is not a part of automatic control system?
   a.) Sensor   b.) Error Detector
   c.) Oscillator   d.) Final Control Element
4. Identify the passive elements among the following
   a.)Voltage source   b.) Current source
   c.) Inductor   d.) Transistor
5. The digital signals are _____ time signals.
   a.) Continuous   b.) Discrete
   c.) Continuous and discrete   d.) None of the above

6. A NOR gate is ON only when all its inputs are
   a.) OFF   b.) ON
   c.) Positive   d.) High
7. An OP-AMP has _____ input and _____ output.
   a.) 1,2   b.) 2,1
   c.) 3,1   d.) 4,1

Q.2	**(a)**	Explain in brief about Lumped circuit elements called resistor and capacitor.	**03**
	(b)	Explain how the Wheatston Bridge can find the unknown resistance?	**04**
	(c)	What is Superposition Theorem? Prove the same for a network.	**07**
Q.3	**(a)**	Classify the controlled source and draw schematics for each.	**03**
	(b)	Draw the logic symbol and truth table of OR , EX-NOR, EX-OR, NOR gate.	**04**
	(c)	Give different types of flip fops. Explain any one flip flop in detail.	**07**
Q.4	**(a)**	Reduce the given function using K-map. $F(A,B,C,D) = \Sigma m_i$ (1,3,5,7,8,9,13,14)	**03**
	(b)	Explain inverting configuration of Op-Amp.	**04**
	(c)	Explain universal gates in detail.	**07**
Q.5	**(a)**	Define: (1) Propagation mode (2) Cutoff frequency	**03**
	(b)	Discuss the types of Computer Networks	**04**
	(c)	Explain in brief Product Modulation and Demodulation with necessary diagrams.	**07**
Q.6	**(a)**	How does a PAM signal differ from a PWM, PPM signal?	**03**
	(b)	Give the classification of signals	**04**
	(c)	Draw and explain Block diagram of a super heterodyne FM radio receiver.	**07**
Q.7	**(a)**	Classify the Control systems.	**03**
	(b)	Explain digital control system with necessary block diagrams.	**04**
	(c)	Explain transient response and steady state response of system with diagram.	**07**

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