GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– 1st / 2nd EXAMINATION (NEW SYLLABUS) – SUMMER 2015

Subject Code: 2110016   **Date: 09/06/2015**
Subject Name: BASIC ELECTRONICS
Time: 10.30am-01.00pm   **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.**

Q.1   **Objective Question (MCQ)**
(a)   Choose an appropriate option from the following.   **07**
1.   The frequency that has the longest period is
        (a) 10 KHz   (b) 1 KHz   (c) 10 Hz   (d) 1 Hz
2.   Ohm's law (V = IR)
        (a) Can be applied to a.c similar to that of d.c.
        (b) Can be applied to a.c. but after replacing R by Z (impedance)
        (c) Can never be applied to a.c
        (d) None of the above
3.   The difference in period of two frequencies of 1MHz and 2 MHz is
        (a) 0.5 milli-seconds   (b) 0.5 micro-seconds
        (c) 1 milli-seconds   (d) 1 micro-seconds
4.   Conductance is expressed in terms of
        (a) ohm / m   (b) m / ohm   (c) mho / m   (d) mho.
5.   Which resistor will be physically larger in size ?
        (a) 10 ohm, 50 W   (b) 100 ohm, 10 W
        (c) 1 kohm, 1 W   (d) 10 Mohm, 1/ 2 W.
6.   The output of a logic gate is '1' when all its input are at logic 0. The gate is either
        (a) NAND or an EX OR gate   (b) NOR or an EX-NOR gate
        (c) an OR or an EX NOR gate   (d) an AND or an EX-OR gate
7.   Out of following signals _____ is an even signal.
            (a) Cosine wave   (b) Sine wave
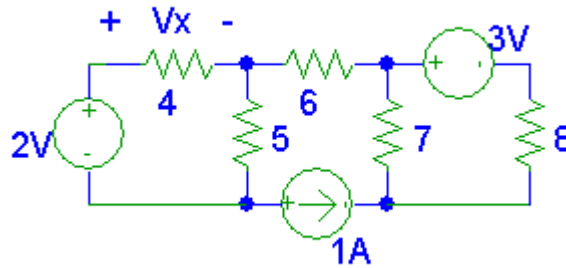   (c) Triangle wave   (d) None of the above.
(b)   Choose an appropriate option from the following.   **07**
1.   The circuit which magnifies a small input signal without changing its shape is called an _____
            (a) Linear amplifier   (b) Power Amplifier
            (c) Non-linear Amplifier   (d) None of Above
2.   IC741 use a _____ polarity supply.
            (a) Dual   (b) Single   (c) Negative   (d) None of Above
3.   Minimum bandwidth of an AM wave is _____.
            (a) f_m (b) $2f_m$ (c) $0.5f_m$ (d) $4f_m$
4.   PCM is a _____ Pulse Modulation Technique.
            (a) Analog   (b) Digital   (c) Hybrid   (d) None of Above
5.   The first cellular systems were _____.
            (a) Analog   (b) Digital   (c) Hybrid   (d) None of Above
6.   A feedback control system is also called a _____.
            (a) Recursive system   (b) Linear System.
            (c) Open loop system   (d) Closed loop system.
7.   CPU communicates with the outside world through the _____.
            (a) Memory (b) I/O devices (c) ALU (d) None of Above

Q.2 **(a)** Define The following Terms.   **03**
            (a) Interference (b) Mutual Inductance (c) Noise Margin

(b) Write a short note on Cathode Ray Oscilloscope. **04**

(c) Find the voltage Vx using superposition theorem. All resistor values are in ohm. **07**

Q.3 **(a)** Draw circuit diagram of non-inverting operational amplifier & explain in brief. **03**

(b) Explain DELTA-WYE transformation in brief with necessary equations and circuit diagrams. **04**

(c) Describe low pass active filter using Operational amplifier with necessary diagrams and equations. **07**

Q.4 **(a)** What is difference between in Microprocessor and Microcontroller? **03**

(b) What do you understand about multiplexing? Explain any one of the Multiplexing technique. **04**

(c) Draw & Explain the functional description of digital communication system in brief. **07**

Q.5 **(a)** Reduce the given function using K-map, F= $\Sigma m(1,3,5,9,11,13)$ **03**

(b) Write Short note on D flip flop with circuit diagram and truth table. **04**

(c) Classify the types of Computer network? Explain each one of them in brief. **07**

Q.6 **(a)** What do you understand about isotropic radiator? **03**

(b) Classify the standard based on 2G & 3G. **04**

(c) What do you understand about frequency reuse concept & Why it is used in cellular system? **07**

Q.7 **(a)** Classify the Control systems. **03**

(b) Compare Open loop and Close loop System. **04**

(c) Compare DSB-FC, DSB-SC, SSB, VSB. **07**

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