Kerala Technological University

Sample Question Paper Set-1 :Basics of Electronics Engineering

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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

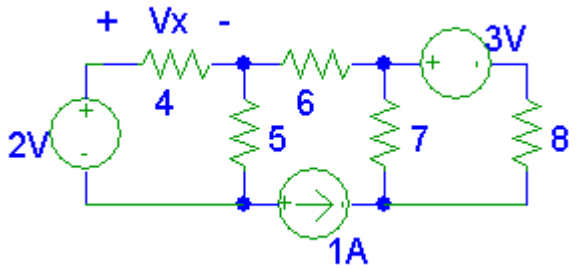
6. A feedback control system is also called a_____.
(a) Recursive system (b) Linear System.
(c) Open loop system (d) Closed loop system.

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= Σm(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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Sample Question Paper Set-2 :Basics of Electronics Engineering

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Q.1 Objective Questions

Choose an appropriate option from the following. **14**

1. In hydraulic system, Quantity named Flow is described as a Output flow rate F_o, and in electrical quantity it is described as a_____.

(a) Voltage , (b) Current, (c) Capacitance, (d) Inductance

2. To find the linearity of the circuit network which theorem is used?

(a) KCL, (b) KVL, (c) Superposition, (d) Maximum Power Transfer

3. For the operational amplifier with inverting configuration the change in the phase of the output voltage is _____.

(a) 180^o, (b) 90^o,(c) 270^o, (d) 45^o

4. Which one is the Linear application design by Op-amp ?

(a) Integrator, (b) Voltage Regulator, (c) Multiplier, (d) Comparator

5. The equivalent Decimal of the BCD $(001110001001)_{BCD}$ is_____.

(a) $(388)_{10}$, (b) $(386)_{10}$, (c) $(380)_{10}$, (d) $(389)_{10}$

6. Which are the logic gates kwon as a Universal Gates?

(a) XOR, AND, (b) AND, OR, (c) NAND, NOR, (d) XNOR,OR

7. By using which theorem we can replace the whole circuit network in single voltage and resistor network?

(a) Superposition, (b) Maximum power Transfer, (c) Norton's Theorem, (d) Thevenin's Theroem

8. In the given pulse modulations, which one is not the type of pulse modulation?

(a) PWM, (b) PSK, (c) PPM, (d) PAM

9. Even signals are stratify the property for signal x(t)=_____.

(a) x(-t), (b) -x(t),(c) -x(t)/4, (d) -x(t)/2

10. 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

11. Commercial FM radio broadcasting utilizes a frequency band _____.

(a) 90 MHz to 110 MHz, (b) 70 MHz to 120MHz, (c) 110 MHz to 180MHz, (d) 88MHz to 108MHz

12. In Which process Sampling is used?

(a) Frequency Division, (b) Signal amplification, (c) Signal attenuation, (d) Digital Modulation

13. Feedback control system in which the control action is dependent upon the _____.

(a) Input, (b) Output, (c) Compactness, (d) Cost of System.

14. For the unit step response of the control system, rise time is given by the value from _____of its final value.

(a) 10% to 90%, (b) 20% to 99 %, (c)10 % to 80% , (d) 30% to 100%.

Q.2	**(a)**		Explain in brief about Lumped circuit elements called resistor and capacitor.	**07**
	(b)	(1)	Write a short note on Ammeter and Voltmeter.	**04**
		(2)	Explain WYE-DELTA transformation in brief with necessary equations and circuit diagrams.	**03**
Q.3	**(a)**		Determine the voltage across the 20 Ohm resistor in the following circuit of Figure.(a) with the application of superposition theorem.	**07**

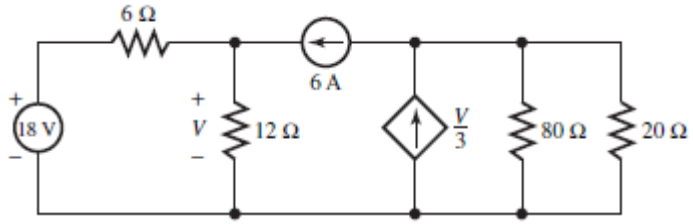

Figure.(a)

	(b)		Write about Differential amplifier using Op-amp with necessary circuit diagram and equations.	**07**
Q.4	**(a)**		Describe band pass active filter using Operational amplifier with necessary diagrams and equations.	**07**
	(b)	(1)	For the switching function F = A(A'+B), draw a corresponding set of logic blocks and write the truth table.	**03**
		(2)	Reduce the given function using K-map. F(A,B,C,D) = $\sum m_i$ (1,3,5,7,8,9,13,14).	**04**
Q.5	**(a)**	(1)	Write Short note on SR flip flop with circuit diagram and truth table.	**03**
		(2)	Draw only ISO-7 layer model block diagram of an OSI for computer Networks.	**04**
	(b)		Explain in detail Pulse modulation with necessary diagrams.	**07**
Q.6	**(a)**	(1)	Draw only functional block diagram of signal processing system.	**03**
		(2)	Explain in brief Product Modulation and Demodulation with necessary diagrams.	**04**
	(b)		Write short not on Cellular communication system.	**07**
Q.7	**(a)**	(1)	Define Waveguide, Transmission lines and Antenna.	**03**
		(2)	Explain any four rules of Block diagram reduction for control system with necessary block diagrams.	**04**
	(b)	(1)	Draw and explain the typical unit step response (Transient Response) of the control system.	**07**

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