Dr. Mahalingam College of Engineering and Technology, Pollachi-3

(An Autonomous Institution)

CCET II (2016Regulation)

Name of Programme: **B.E - EEE**

Course Code & Course Title:**16EET44 – Networks and Signals**

Sem:IV Date & Session:16.03.2018 (FN1) Duration: 1½ hours Max. Marks: 50

Part- A Objective Questions (10X1=10 Marks)

Q. No	Question	CO No	Blooms Level
1	An ideal filter should have _____ a) zero attenuation in the pass band b) infinite attenuation in the pass band c) zero attenuation in the attenuation band d) infinite attenuation in the cutoff point	CO3	U
2	The values of L and C for a low pass filter with cutoff frequency of 2.5 KHz to operate with a terminated load resistance of 450 ohms are given by _____ a) 57.32 mH; 0.283 μF b) 28.66 mH; 0.14 μF c) 114.64 mH; 0.566 μF d) 85.98 mH; 0.42 μF	CO3	R
3	A band pass filter is obtained by using a high pass filter followed by low pass filter. Say True or False	CO3	R
4	The attenuation is not sharp in the stop band for _____ filters.	CO3	R
5	In m derived low pass filters , the resonant frequency is to be chosen so that it is a) Above cut off frequency b) Below the cutoff frequency c) Equal to cut off frequency d) half of the cut off frequency	CO3	U
6	An LTI system is said to be linear if and only if it satisfies the principle of _____	CO4	U
7	The integral of impulse function gives a) Step function b) Ramp function c) Pulse function d) Exponential function	CO4	R
8	Non deterministic signals are also called as _____ a) Thermal noise b) Ramp signals c) Random signals d) Sinusoidal signals	CO4	R
9	A signal is said to be energy signal if _____	CO4	U
10	Digital impulse signal is defined by the sequence a) $\delta(n) = 1, n=0$; $0, n<0$ b) $\delta(n) = 1, n=0$; $0, n>0$ b) $\delta(n) = 1, n=0$; $0, n\neq 0$ d) $\delta(n) = 1, n<0$; $0, n\neq 0$	CO4	U

Part- B Short Answer Questions (5X2=10 Marks)

Q. No	Question	CO No	Blooms Level
11	Draw the symmetrical T and π representation of filter network.	CO3	R
12	Design a high pass T-section filter having a cut-off frequency of 1000Hz to operate with a terminated load resistance of 600Ω.	CO3	U
13	Differentiate pass band and stop band filters.	CO3	R

14	Distinguish between Energy and Power signals.	CO4	U
15	List the classifications of signals.	CO4	R

Part- C Descriptive – either or questions (2X15=30 Marks)

Q. No	Question	CO No	Blooms Level
16. (a)	(i) Derive the characteristic impedance of constant K low pass filter and also draw the impedance curve with frequency. (10) (ii) Design a low pass filter (T or pi network) having the cut off frequency of 2 kHz with load resistance of 500Ω. (5)	CO3	U
	OR		
16. (b)	Design a m derived high pass filter with a cut off frequency of 10KHz, design impedance of 5Ω and m=0.4.	CO3	U
17. (a)	Check the following systems are causal or non-causal, time variant or invariant, linear or nonlinear, static or dynamic, stable or unstable. (i) y(n)= x(2n) (ii) y(n)=Ax(n)+B (7) (iii) y(n) = n x(n)	CO4	Ap
	OR		
17. (b)	i) Check whether the following signals are periodic and find its fundamental period. (6) x(n)=Sin 2πn and x(n)= cos 2πn +cos 8πn ii) Check the signal x(n)= sin(nπ/3)is energy signal or power signal. (5)	CO4	Ap

iii) If x(n)={ 0,2,-1,0,2,1,1,0,-1} determine x(n-3) and x(-n). Also represent graphically. (4)

Note: Code for Blooms Levels:

Sl. No.	Blooms Level	Code
1	Remember	R
2	Understand	U
3	Apply	Ap
4	Analyze	An
5	Evaluate	E
6	Create	C