Program: **BE Electronics Engineering**

Curriculum Scheme: Revised 2012

Examination: **Third Year Semester V**

Course Code: **EXC 504** and Course Name: **Signals and Systems**

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	What is the other name of a Continuous Time Unit Impulse Function?
Option A:	Dirac delta function
Option B:	Unit function
Option C:	Area function
Option D:	Direct delta function
Q2.	What is the area of a Unit Impulse function?
Option A:	Zero
Option B:	Half of Unity
Option C:	Depends on the function
Option D:	Unity
Q3.	If x (-t) = -x (t) then the signal is said to be _____
Option A:	Even signal
Option B:	Odd signal
Option C:	Periodic signal
Option D:	Non periodic signal
Q4.	Y (t) = x (2t) is _____
Option A:	Compressed signal
Option B:	Expanded signal
Option C:	Shifted signal
Option D:	Amplitude scaled signal by a factor of 2
Q5.	Y (t) = x (t/5) is _____
Option A:	Compressed signal
Option B:	Expanded signal
Option C:	Time shifted signal
Option D:	Amplitude scaled signal by factor 1/5
Q6.	The given pair x (t) and y (t) is _____
Option A:	Y (t) = d/dt (x (t)
Option B:	Y (t) = ∫x (t).dt
Option C:	Y (t) = x (t) -1
Option D:	Y(t) = x (t) /2

Q7.	Find the Laplace transform of $\delta(t)$.
Option A:	1
Option B:	0
Option C:	∞
Option D:	2
Q8.	Find the ROC of $x(t) = e^{-2t} u(t) + e^{-3t} u(t)$.
Option A:	$\sigma>2$
Option B:	$\sigma>3$
Option C:	$\sigma>-3$
Option D:	$\sigma>-2$
Q9.	Find the Laplace transform of u(t) and its ROC.
Option A:	$1/s$, $\sigma<0$
Option B:	$1/s$, $\sigma>0$
Option C:	$1/(s-1)$, $\sigma=0$
Option D:	$1/(1-s)$, $\sigma\leq0$
Q10.	Find the Laplace transform of $\cos \omega t\, u(t)$.
Option A:	$\frac{s}{s^2+\omega^2}$
Option B:	$\frac{s}{s^2-\omega^2}$
Option C:	$\frac{\omega}{s^2+\omega^2}$
Option D:	$\frac{\omega}{s^2-\omega^2}$
Q11.	Find the Laplace transform of $e^{-at} \sin \omega t\, u(t)$
Option A:	$\frac{s+a}{(s+a)^2+\omega^2}$
Option B:	$\frac{s+a}{(s+a)^2-\omega^2}$
Option C:	$\frac{\omega}{(s+a)^2+\omega^2}$
Option D:	$\frac{\omega}{(s+a)^2-\omega^2}$
Q12.	Find the Laplace transform of $e^{-at} \cos \omega t\, u(t)$
Option A:	$\frac{s+a}{(s+a)^2+\omega^2}$
Option B:	$\frac{s+a}{(s+a)^2-\omega^2}$
Option C:	$\frac{\omega}{(s+a)^2+\omega^2}$
Option D:	$\frac{\omega}{(s+a)^2-\omega^2}$
Q13.	Find the Laplace transform of $\sin \omega t\, u(t)$.
Option A:	$\frac{s}{s^2+\omega^2}$

Option B:	$\frac{s}{s^2-\omega^2}$
Option C:	$\frac{\omega}{s^2+\omega^2}$
Option D:	$\frac{\omega}{s^2-\omega^2}$
Q14.	The Laplace transform of the signal u (t+2) is _____
Option A:	$\frac{1}{s}$
Option B:	$-\frac{1}{s}$
Option C:	$\frac{e^{-2s}}{s}$
Option D:	$\frac{-e^{-2s}}{s}$
Q15.	Find the Z-transform of δ(n+3).
Option A:	z
Option B:	z^2
Option C:	1
Option D:	z^3
Q16.	Find the Z-transform of a^n u(n); a>0.
Option A:	$\frac{z}{z-a}$
Option B:	$\frac{z}{z+a}$
Option C:	$\frac{1}{1-az}$
Option D:	$\frac{1}{1+az}$
Q17.	Find the Z-transform of y(n) = x(n+2)u(n).
Option A:	z^2 X(Z) – z^2 x(0) – zx(1)
Option B:	z^2 X(Z) + z^2 x(0) – zx(1)
Option C:	z^2 X(Z) – z^2 x(0) + zx(1)
Option D:	z^2 X(Z) + z^2 x(0) + zx(1)
Q18.	Find the Z-transform of u(-n).
Option A:	$\frac{1}{1-z}$
Option B:	$\frac{1}{1+z}$
Option C:	$\frac{z}{1-z}$
Option D:	$\frac{z}{z+1}$
Q19.	The z-transform of δ[n-k]>0 is _____
Option A:	Z^k, Z>0
Option B:	Z^{-k}, Z>0
Option C:	Z^k, Z≠0

Option D:	Z^{-k}, Z≠0
Q20.	The z-transform of δ[n+k]>0 is _____
Option A:	Z^{-k}, Z≠0
Option B:	Z^{k}, Z≠0
Option C:	Z^{-k}, all Z
Option D:	Z^{k}, all Z
Q21.	Find the Z-transform of the causal sequence x(n) = {1,0,-2,3,5,4}.
Option A:	$1 - 2z^{-2} + 3z^{-3} + 5z^{-4} + 4z^{-5}$
Option B:	$1 - 2z^{2} + 3z^{3} + 5z^{4} + 4z^{5}$
Option C:	$z^{-1} - 2z^{2} + 3z^{3} + 5z^{4} + 4z^{5}$
Option D:	$z - 2z^{3} + 3z^{4} + 5z^{5} + 4z^{6}$
Q22.	Find the Z-transform of the causal sequence x(n) = {1,0,-2,3,5,4}.
Option A:	$1 - 2z^{-2} + 3z^{-3} + 5z^{-4} + 4z^{-5}$
Option B:	$1 - 2z^{2} + 3z^{3} + 5z^{4} + 4z^{5}$
Option C:	$z^{-1} - 2z^{2} + 3z^{3} + 5z^{4} + 4z^{5}$
Option D:	$z - 2z^{3} + 3z^{4} + 5z^{5} + 4z^{6}$
Q23.	Find the fourier transform of an exponential signal $f(t) = e^{-at}\,u(t)$, a>0.
Option A:	$\frac{1}{a+j\omega}$
Option B:	$\frac{1}{a-j\omega}$
Option C:	$\frac{1}{-a+j\omega}$
Option D:	$\frac{1}{-a-j\omega}$
Q24.	Find the fourier transform of an exponential signal $f(t) = e^{at}\,u(t)$, a>0.
Option A:	$\frac{1}{a+j\omega}$
Option B:	$\frac{1}{a-j\omega}$
Option C:	$\frac{1}{-a+j\omega}$
Option D:	$\frac{1}{-a-j\omega}$
Q25.	Find the fourier transform of the function $f(t) = e^{-a\|t\|}$, a>0.
Option A:	$\frac{2a}{a^2-\omega^2}$
Option B:	$\frac{2a}{a^2+\omega^2}$
Option C:	$\frac{2a}{-a^2+\omega^2}$
Option D:	$\frac{a}{a^2+\omega^2}$