

Program: SE Computer Engineering

Curriculum Scheme: Rev-2016

Examination: Second year semester III

Course Code: CSC 301 and Course Name: Applied Mathematics-III

Time: 1 Hour

Max. Marks: 50

Q1.	$L[ t^{\frac{5}{2}} ]$ is
Option A:	$\frac{3}{4s^{\frac{3}{2}}}$
Option B:	$\frac{3\sqrt{\pi}}{4s^{\frac{5}{2}}}$
Option C:	$\frac{5\sqrt{\pi}}{4s^{\frac{5}{2}}}$
Option D:	$\frac{15\sqrt{\pi}}{8s^{\frac{7}{2}}}$
Q2.	$L[ f(t) ] = \frac{1}{s\sqrt{s+1}}$ then $L[ e^{-2t}f(t) ]$ is
Option A:	$\frac{1}{(s+2)\sqrt{s+3}}$
Option B:	$\frac{1}{(s+2)\sqrt{s+2}}$
Option C:	$\frac{1}{(s-2)\sqrt{s-1}}$

Option D:	$\frac{1}{(s-1)\sqrt{s}}$
Q3.	L [ t sint ] is
Option A:	$\frac{2}{(s^2 + 1^2)^2}$
Option B:	$\frac{2s}{(s^2 + 1^2)^2}$
Option C:	$\frac{-2}{(s^2 + 1^2)^2}$
Option D:	$\frac{2s^2}{(s^2 + 1^2)^2}$
Q4.	L[ $\int_0^t \cosh 4x dx$ ] is
Option A:	$\frac{1}{(s^2 + 16)}$
Option B:	$\frac{1}{(s^2 - 16)}$
Option C:	$\frac{1}{s} \frac{1}{(s^2+16)}$
Option D:	$\frac{1}{s} \frac{1}{(s^2-16)}$
Q6.	L [ $\frac{\cos t}{t}$ ]
Option A:	exists
Option B:	is zero
Option C:	doesn't exist
Option D:	is 1

Q7.	Find $L^{-1} \left[ \frac{s-3}{(s-3)^2+9} \right]$
Option A:	$e^{3t} \cos 3t$
Option B:	$e^{-3t} \sin 3t$
Option C:	$e^{3t} \sin 3t$
Option D:	$e^{-3t} \cos 3t$
Q8.	Find $L^{-1} \left[ \frac{s+2}{(s+2)^2-16} \right]$
Option A:	$e^{2t} \cosh 4t$
Option B:	$e^{-2t} \sinh 4t$
Option C:	$e^{-2t} \cosh 4t$ (
Option D:	$e^{2t} \sinh 4t$
Q9.	Find $L^{-1} \left[ \frac{2}{(s-1)^2+4} \right]$
Option A:	$e^t \sin 2t$
Option B:	$e^t \cos 2t$
Option C:	$e^{-t} \sin 2t$
Option D:	$e^{-t} \cos 2t$
Q10.	Find $L^{-1} \left[ \frac{1}{(s+4)^{3/2}} \right]$
Option A:	$2e^{4t} \sqrt{\frac{\pi}{t}}$
Option B:	$e^{-4t} \sqrt{\frac{\pi}{t}}$
Option C:	$e^{4t} \sqrt{\frac{t}{\pi}}$
Option D:	$2e^{-4t} \sqrt{\frac{t}{\pi}}$
Q11.	Find $L^{-1} \left[ \frac{1}{3s-4} \right]$
Option A:	$\frac{4}{3} e^{\frac{4}{3}t}$
Option B:	$\frac{1}{3} e^{\frac{4}{3}t}$
Option C:	$\frac{1}{3} e^{-\frac{4}{3}t}$

Option D:	$\frac{4}{3}e^{-\frac{4}{3}t}$
Q12.	The function $f(z) = e^z$ is
Option A:	Analytic
Option B:	Harmonic
Option C:	Not Analytic
Option D:	Not Harmonic
Q13.	The imaginary part of $f(z) = \cos z$ is
Option A:	$-\sin x \cosh y$
Option B:	$\cosh x \cos y$
Option C:	$-\sin x \sin y$
Option D:	$\sin x \sin y$
Q14.	The analytic function corresponding to real part $e^{-x} \sin y$ is
Option A:	$f(z) = e^z + c$
Option B:	$f(z) = e^{-z} + c$
Option C:	$f(z) = ie^z + c$
Option D:	$f(z) = ie^{-z} + c$
Q15.	The analytic function corresponding to imaginary part $3x^2y - y^3$ is
Option A:	$f(z) = z^2 + c$
Option B:	$f(z) = z^3 + c$
Option C:	$f(z) = -z^2 + c$
Option D:	$f(z) = -z^3 + c$
Q16.	Which of these is not Dirichlet's conditions for a function $f(x)$ to be expanded in a Fourier series in the interval $(0, 2L)$
Option A:	$f(x)$ may have discontinuities, finite in number
Option B:	$f(x)$ may have maxima and minima, finite in number
Option C:	$f(x)$ is single valued
Option D:	$f(x)$ is always an even function
Q17.	If $f(x)$ is an odd function, then the Fourier series for $f(x)$ is a
Option A:	Cosine series
Option B:	Sine series

Option C:	Contains both sine series and cosine series
Option D:	neither sine series nor cosine series
Q18.	<i>The fourier series for <math>f(x) =  \sin x </math> in <math>[-\pi, \pi]</math></i>
Option A:	Will have sine terms
Option B:	Will have cosine terms
Option C:	Is zero
Option D:	Doesn't exist
Q19.	If $f(x) = x^2$ in $[-\pi, \pi]$ then what is the value of the first term in the series $\frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos nx + \sum_{n=1}^{\infty} b_n \sin nx$
Option A:	$\frac{\pi^2}{3}$
Option B:	$\frac{\pi^2}{6}$
Option C:	$\frac{\pi^2}{2}$
Option D:	$\frac{\pi}{3}$
Q20.	The slope of the line of regression of y on x is called _____
Option A:	Coefficient of correlation
Option B:	Rank correlation coefficient
Option C:	Regression coefficient of y on x
Option D:	Regression coefficient of x on y
Q21.	Correlation coefficient is the _____ mean between the regression coefficients
Option A:	Arithmetic
Option B:	Geometric
Option C:	Harmonic
Option D:	Weighted
Q22.	Regression coefficient are independent of the
Option A:	Change of origin
Option B:	Change of scale

Option C:	Change of origin but not scale
Option D:	Change of origin and scale
Q23.	Let the regression equation of y on x be $x - 2y + 5 = 0$ then $b_{yx}$ is equal to
Option A:	-2
Option B:	1
Option C:	5
Option D:	$\frac{1}{2}$
Q24.	Correlation analysis between two sets of data only is called__
Option A:	Partial correlation
Option B:	Multiple correlation
Option C:	Nonsense correlation
Option D:	Simple correlation
Q25.	$Z(a^n)$ is
Option A:	$\frac{z}{z-a}$
Option B:	$\log\left(\frac{z}{z-a}\right)$
Option C:	$\frac{a}{a-z}$
Option D:	$\frac{n}{z-a}$