VIT
Vellore Institute of Technology

Fall Semester 2019-2020
Continuous Assessment Test – II
Programme Name & Branch: B. Têch.
Slot: C1+TC1+TCC1+V2
Maximum Marks: 50

Course Name & Code: CVPDE & MAT3003
Exam Duration: 90 minutes

Answer All the Questions (5 × 10 = 50)

			Marks
1	a	Find the residue at z=1 of $f(z) = \dfrac{e^z}{(z-1)^{55}}$	5
	b	Evaluate $\oint \dfrac{\sin \pi z^2 + \cos \pi z^2}{(z+1)(z+2)} dz$ along the circle $|z|=3$	5
2		Evaluate using a suitable contour by complex integration	
	a	$\displaystyle\int_{-\infty}^{+\infty} \dfrac{x\, dx}{(x^2+7^2)(x^2+8^2)(x^2+9^2)}$	10
	b	$\displaystyle\int_{0}^{2\pi} \dfrac{d\theta}{(13 + 12 \cos \theta)^2}$	10
3	a	Show that $y = f(x + ct) + g(x - ct)$ satisfies the wave equation.	5
	b	Solve $2p-3q=4z$	5
4		Solve $(y + z)p + (z + x)q = (x + y)$	10