Mahakal Institute of Technology, Ujjain

Department of Mathematics

PYQ's Unit -IV

Q.N.	Question	Marks	RBT Level	CO
Q1	Write short note on : 1 Cauchy Riemann equation dec2023			
Q2	Determine p so that the function $f(z)=\frac{1}{2}\log(x^2+y^2)+i\tan^{-1}\left(\frac{px}{y}\right)$. . Dec2023			
Q3	Show that the function $u(x,y)=e^x \cos y$ is harmonic determine its harmonic conjugate . Dec2023			
Q4	Find the residue of $\frac{Ze^z}{(z-1)^3}$ at its pole Dec2023			
Q5	Use Cauchy Intergral formula to solve $\oint_c \frac{\sin\pi z^2+\cos\pi z^2}{(z-1)(z-2)}$ dz where C is the circle $\|z\|=3$ june 2023			
Q.6	Using complex integration method solve $\int_0^{2\pi}\frac{\cos 4\theta}{5+4\cos\theta}\,d\theta$ june2023			
Q.7	Show that $f(z)=zz$ is differentiable but not analytic at origin Nov 2022			
Q.8	Show that the function $u(x,y)=e^{-2x}\sin 2y$ is harmonic determine its harmonic conjugate june 2023			
Q.9	By Residue theorem ,Evaluate $\oint_c \frac{\tan z}{z^2-1}$ dz ,where c ; $\|z\|=2$. June 2023			
Q.10	Using Cauchy integral theorem. to evaluate the integral $\oint_c \frac{e^{2z}}{(z-1)^2(z-3)}$ dz where C is the circle $\|z\|=3$ june 2023			
Q.11	Construct the analytic function f(z), whose real part is $e^x \cos y$. June 2022			
Q.12	Using Cauchy integral formula , find $\oint_c \frac{e^{2z}}{(z+1)^3}$ dz where C is curve $\|z\|=2$ june 2022			

Q13	Evaluate $\oint_C \frac{1}{(z+4)z^3}\,dz$ where C is the circle $\|z\|=2$. june 2022			
Q14	Show that the function $f(z)=e^z$ is analytic everywhere. June 2022			
Q15	Evaluate $\oint_C \frac{z}{z^2+9}\,dz$ where C is the circle $\|z-2i\|=4$. june 2020			
Q16	Determine whether $\frac{1}{2}$ is analytic or not . june 2020 ,Nov 2019			
Q17	Show that the function $u=e^{-2ny}\sin(x^2-y^2)$ harmonic. june 2020 ,Nov 2019			
Q18	Evaluate the following integral using Cauchy integral formual $\oint_C \frac{4-3z}{z(z-1)(z-2)}\,dz$ where C is the circle $\|z\|=3/2$. May2019			
Q19	Evaluate $\int_0^{2\pi} \frac{d\theta}{2+\cos\theta}$ for the circle $\|z\|=1$. May2019			