**G. H. Raisoni College of Engineering,**

**Digdoh Hills, Hingna Road , Nagpur.**

 **IV –SEM CSE**

 **SUB-NUMERICAL COMPUTING**

 **QUESTION BANK I**

**Q1.Explain Newton-Rapson method.**

**Q2.write an algorithm for Newton-Rapson method.**

**Q3.Using Newton-Rapson method find,the real root of equation xlog10x=1.2**

**Q4.Find the smallest positive root of x3-5x+3 by using Newton’s method.**

**Q5.solve the simultaneous non –linearequations**

 **X2+y2=4,and xy=1**

**Using Newton rapson method.use starting values.**

**Q6.solve the following system of equations using Guass elimination method**

 **5x+y+z=8**

 **2x+4y+z=11**

 **x+2y+5z=10**

**Q7.use Runge –Kutta method to solve dy/dx=xy, for x=1.4 where X0=1,Y0=2.**

**Q8.perform two iterations of Muller’s method to find a real root of the equations.**

 **X3-x-1=0**

**Q9.find a real root ,correct up to three decimal places, of the equation**

 **XsinX-cosx=0**

 **Using false position method.**

**Q10.perform five iterations of the Muller method to find the root of the eq. of the cosx-xex=0.**

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 **QUESTION BANK II**

**Q1.obtain the complex roots of the equations Z3+1=0,given that Z0=(0.25,0.25)**

**Q2.evaluate the integral**

 **I= dxdy/x+y**

 **Using the Trapezodial Rule with h=k=0.25**

**Q3.Define :**

 **i)Truncation-off-error**

 **ii)Rounding \_off-error**

 **iii)Algorithmic error**

**Q4.Solve the boundry value problem**

 **Y”=x+y;Y(0)=y(1)=0**

**Q5.solve the equation Y1=x+y2,subject to the condition y=1,where x=0**

**Q6.Explain Guass\_legendre Integration methods.**

**Q7.Define Newton –cotes methods and Gaussian integration methods.**

**Q8.Explain Taylor’s series method.Also give algorithm for Talor’s series .**

**Q9.solve the following by Choleskey method**

 **10x+y+z=12**

 **2x+10y+z=13**

 **2x+2y+10z=14**

**Q10.find real root,correct up to three places of the equation**

 **Ex-3x2+1=0**

 **Using Newton rapson method**

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**QUESTION BANK III**

**Q1.Explain Lagrange’s Bivariate Interpolation.**

**Q2.Explain the Hermite’s Interpolation formula.**

**Q3.Explain least square approximation.**

**Q4.Explain in short uniform approximation**

**Q5. Explain in short uniform polynomial approximation.**

**Q6.Define Newtons-cotes methods and Gaussions integration methods.**

**Q7.compare direct and iterative methods.**

**Q8.write an algorithm for solving linear simultaneos equations by Gauss-elimination method.**

 **Q9.Explain Muller’s method.**

**Q10.Explain pivoting.**

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 **QUESTION BANK IV**

 **Q1.Explain Iterative method with an example.**

**Q2.Find a real root of the equations X3+X2-1=0 on the interval [0,1] with an accuracy of 10-4.**

**Q3.Explain Talor’s series methd.Also give algorithm for same.**

**Q4.Explain in short uniform app method.**

**Q5.Explain Lobatto integration methods**

**Q6.Explain least squares approximations.**

**Q7.Explain boundry value problems.**

**Q8.Explain initial value methods.**

**Q9.Explain Runge Kutta method.**

**Q10.Write an algorithm to implement second ordre Runge Kutta method.**