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**D. K. M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1**

**SEMESTER EXAMINATIONS**

 **NOVEMBER – 2018 15SMA5A**

 **SKILL BASED SUBJECT - III : NUMERICAL METHODS**

**Time : 2 Hours Max. Marks : 50**

**SECTION - A ( 10 x 2 = 20 )**

**Answer ALL the questions.**

1. *What is Central difference operator? Explain.*
2. *What is the relation between E & ?*

1. *Prove that .*

1. *Write Newton’s Forward and Backward Interpolation formula.*
2. *Write the formula for Simpson’s 1/3rd and 3/8th rule.*
3. *What is numerical integration? Explain.*
4. *Give the formula for Taylor’s rule.*
5. *Solve by Gauss Elimination method 2x+y=3; 7x-3y=4.*
6. *What is the aim of Euler’s method?*
7. *Write the formula for Picard‘s method.*

**SECTION - B ( 3 x 10 = 30 )**

**Answer any THREE of the following questions.**

1. *Solve the equation for the positive root by Iteration method.*
2. *Find the missing term in the following data by using Newton’s Backward difference formula.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *X* | *1* | *2* | *3* | *4* | *5* | *6* | *7* |
| *Y* | *2* | *4* | *8* | *-* | *32* | *64* | *128* |

1. *Solve the system of equations by i) Gauss elimination method ii) Gauss Jordan method,*

 *x+2y+z=3; 2x+3y+3z=10; 3x-y+2z=13.*

1. *Using Euler’s method, solve numerically the equation,  for x = (0.0)(0.2)(1.0).*
2. *Evaluate , using Trapezoidal rule with h=0.2. Hence obtain an approximate value of .*

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