

A-825

M.Sc. II Semester ATKT Examination 2020

Subject : Mathematics

Paper : IV – Numerical Methods

Max.Marks : 15

Note: Attempt all questions.

Unit – I

1. Explain Secant method.

Or

Explain Bisection methods.

Unit – II

2. Describe Cholosky method.

Or

Solve by using Gauss-Seidel method:

$$20x + y - 2z = 17$$

$$3x + 20y - z = -18$$

$$2x - 3y + 20z = 25$$

Unit – III

3. Given that $\sin 45^\circ = 0.7071$, $\sin 50^\circ = 0.7660$, $\sin 55^\circ = 0.8192$
 $\sin 60^\circ = 0.8660$, Find $\sin 52^\circ$ by any interpolation method.

Or

Explain central difference interpolation.

Contd...

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Unit – IV

4. Derive Newton-Cotes formula.

Or

Explain Simpson's one-third rule.

Unit – V

5. Explain Euler's method.

Or

Solve by Taylor's series method:

$$xy' = x - y, \quad y(2) = 2 \text{ at } x = 2.1$$
