

9

**SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS,
FEROZEPUR**

ROLL No:

--	--	--	--	--	--	--	--	--	--	--	--

Total number of pages: [2]

Total number of questions: 06

B.Tech. || EE || 5th Sem
Numerical & Statistical Methods
Subject Code: BTEE-505

Paper ID: (for office use)

Time allowed: 3 Hrs

Max Marks: 60

Important Instructions:

- All questions are compulsory
- Assume any missing data
- Additional instructions, if any

PART A (2×10)

All COs

Q. 1. Short-Answer Questions:

- (a) Define pivoting Technique.
- (b) what is differences between Direct & In-direct method?
- (c) Define forward & backward differences?
- (d) what is differences between Poission and Binomial distribution?
- (e) Define degree of freedom and hypothesis?
- (f) Write equation of Newtons Raphson's method for non-linear equations.
- (g) Write the formula for Simpson's 3/8th Rule.
- (h) Define rate of convergence?
- (i) Define Eigenvalue and Eigen vector?
- (j) Write the formula of Euler's Modified method.

PART B (8×5)

Q. 2. Define Relative, percentage, round off and truncation error with example? COa

OR

Find cube root of 29 by using Regular-Falsi Method. COa

Q.3. Solve $x^2y + y^3 = 10$ and $xy^2 - x^2 = 3$ with initial approximation (.8, 2.2) by Newtons Raphson's Method. COb

OR

Solve $2x + y + z - 2w = -10$, $4x + 2z + w = 8$, $3x + 2y + 2z = 7$, by COb

$$x + 3y + 2z - w = -5$$

Gauss – Elimination Method.

Q.4. Prove that total area under the normal curve is one. COc

OR

Samples of sizes 20 and 14 were taken from two normal population with COc

S.D 3.5 & 5.2. The sample means were found to be 20.3 and 18.6. test whether the means of the two populations are the same at 5% level.

- Q. 5. Evaluate $\int_0^{\frac{\pi}{2}} \sqrt{\sin x} dx$ by Simpson's $1/3^{rd}$ Rule taking $n=6$ intervals.

COD

OR

The distance covered by the athlete for the 50m race is given in the following table: COD

Time	0	1	2	3	4	5	6
Distance	0	2-5	8-5	15-5	24-5	36-5	50

Determine the speed of the athlete at $t=5$ sec to two decimals.

- Q. 6. Solve $\frac{dy}{dx} = x^2 + y^2$ $y(0)=1$ find $y(0.2)$ by Euler's modified method Take $h=0.1$ COe

OR

Discuss method of least square for equation of parabola. COe