18/1/12

Roll No. ....

MCA/D11   4520

Computer Oriented Numerical and Statistical Methods

Paper : MCA–105

Time : Three Hours]   [Maximum Marks : 80

Note :— Attempt **FIVE** questions in all. Question No. **1** is compulsory. Select **ONE** question from each Unit. Non-progammable calculator can be used.

(Compulsory Question)

1. (i) Explain floating-point representation of numbers.

   (ii) How will you define the order of convergence ? Explain it.

   (iii) Define ill-conditioned equations with examples.

   (iv) Define Numerical differentiation with examples.

   (v) Explain the difference between interpolation and inverse interpolation.

   (vi) Discuss Chebyshev polynomials of first kind.

   (vii) State Cochran's Theorem.

   (viii) Define Seasonal fluctuations. $3×8=24$

UNIT–I

2. (a) Locate and correct the error in the following table :-

x	f(x)	x	f(x)
3.60	0.112046	3.66	0.160780
3.61	0.120204	3.67	0.168857
3.62	0.128350	3.68	0.176908
3.63	0.136462		
3.64	0.144600		
3.65	0.152702		7

4520   1   Contd.

UNIT–IV

8. (a) What do you know about a time series ? Explain its importance in business and economics. 7

(b) A study of demand (d_t) for the past 12 years ($t = 1, 2, 3, ..., 12$) has indicated the following :

$d_t = 100$; $t = 1, 2, 3, ..., 5$

$= 20$; $t = 6$

$= 100$; $t = 7, 8, ..., 12$

Compute a 5 year moving average. 7

9. (a) What do you understand by "ANOVA" ? Explain it and also state the basic assumptions in it. 7

(b) Explain the difference between Null and Alternative hypothesis with suitable examples. 7