

M.Phil/Pre Ph.D Regular & Supplementary Examinations – OCTOBER, 2023
R181102

Paper –II: METHODS IN PHYSICS.
Physics

Time : 3 hrs

Maximum Marks : 100

Answer One Question from Each Unit
All Questions Carry Equal Marks

UNIT-I

1. (A) Discuss in detail the first and second shifting theorems of Laplace Transformations
OR
(B) (i) Evaluate the inverse Laplace transform of $\frac{5s+3}{(s-1)(s^2+2s+5)}$
(ii) State and prove Convolution theorem of Laplace Transform

UNIT-II

2. (A) Explain in detail the principle and working of Raman spectrometer
Describe Structure determination by Raman Spectroscopy
OR
(B) Explain the principle, working and application of NMR spectrometer

UNIT-III

3. (A) Draw the block diagram of a typical operational Amplifier explain the application of operational amplifier as integrator and differentiator
OR
(B) Explain the Architecture and organisation of 8085 microprocessor with a block diagram; explain Data transfer and different addressing modes of 8085 microprocessor

UNIT-IV

- 4.(A) With a neat diagram describe the working principle of Transmission Electron Microscope (TEM). Describe the study of crystal structure using TEM.
OR
(B) With a neat block diagram Describe in detail the principle and working of Scanning Electron Microscope (SEM). Discuss the study of microstructure using SEM

UNIT-V

5. (A) Describe in detail about the following in C-Programming (i) Variables and Data types (ii) Operators and expressions (iii) Formatted input and Formatted output
OR
(B) Explain the WHILE, DO...WHILE, FOR statements in C-Programming
