

MANONMANIAM SUNDARANAR UNIVERSITY

DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION

INTERNAL ASSIGNMENT FOR MAY 2025 EXAMINATIONS

M.Sc. Physics – First Semester

Mathematical Physics

Sub-Code: SPHM11

1.) (A) Discuss the different types of operators with suitable Examples.

(OR)

(B) Drive: 1.) Taylor's series
 2.) de Moivre's theorem
 3.) multiplication law of probability.

2.) (A) Discuss the importance of matrix function and derive the Cayley-Hamilton theorem.

(OR)

(B) Define: Fourier transform and Laplace transform.

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M.Sc. Physics – First Semester

Classical Mechanics and Relativity

Sub-Code: SPHM12

1.) (A) Discuss the holonomic and non – holonomic constraints.

(OR)

(B) Use Lagrangian equations and explain simple pendulum and Atwood's machine problems.

2.) (A) Explain one dimension simple harmonic oscillator with Hamiltonian formulation.

(OR)

(B) Discuss: 1.) Lorentz transformation.

2.) Minkowski's space.

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M.Sc. Physics – First Semester

Linear and Digital ICs and Applications

Sub-Code: SPHM13

1.) (A) Explain the of AMP characteristics with neat circuit diagram.

(OR)

(B) Construct the circuit for Schmitt trigger and multivibrators, and write the working principle.

2.) (A) Short note: i.) R - 2R ladder
ii) inverted R – 2R DAC
iii) parallel comparator type ADC.

(OR)

(B) Explain different types of Triggers.

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M.Sc. Physics – First Semester

Energy Physics

Sub-Code: SPHE11

- 1.) (A) What are the different types of convective and non-convective energy resources (Only primary)

(OR)

- (B) Discuss about ocean thermal energy conversion (OTEC)

- 2.) (A) Discuss about the factors affecting bio-gas generation.

(OR)

- (B) Explain the types of collectors and concentrators.