J.D.B. Government Girls' College, Kota

M.Sc. SEM-I

Paper-101 (Mathematical Methods in Physics)

Monthly Test

Maximum Marks: 15

Very Short Questions (1 Mark each)

1. Write the statement of Laurent Series.
2. What is analytic function?
3. What do you mean by Fourier integral?
4. What is inverse Fourier transform?
5. Define singular point.

Short Questions (2.5 Marks each)

6. Discuss Cauchy integral theorem.
7. State and derive Taylor series.

Long Answer Questions (5 Marks)

8. Define convolution theorem and discuss its physical significance.

Or

State and prove shifting property of Fourier transform.

J.D.B. Government Girls' College, Kota

M.Sc. SEM-I

Paper-102 (Classical Mechanics)

Monthly Test

Maximum Marks: 15

Very Short Questions (1 Mark each)

1. Define generalised co-ordinates.
2. Write down principle of least action.
3. Define C-Frame of reference.
4. Define reduced mass.
5. Define generalised momentum.

Short Questions (2.5 Marks each)

6. Describe holonomic and non-holonomic constraints. Give examples.
7. Explain D'Alembert's principle.

Long Answer Questions (5 Marks)

8. Derive Lagrange's equations from D'Alembert's principle.

Or

Derive Lagrange's equation for Atwood's machine.

J.D.B. Government Girls' College, Kota

M.Sc. SEM-I

Paper-103 (Quantum Mechanics-I)

Monthly Test

Maximum Marks: 15

Very Short Questions (1 Mark each)

1. What do you mean by complete set of basis states?
2. Define Bra-Ket.
3. Why is Hilbert space important in quantum mechanics?
4. What is linear operator in quantum mechanics?
5. Write down the normalization condition.

Short Questions (2.5 Marks each)

6. Describe superposition of amplitudes in quantum mechanics.
7. Write down properties of quantum mechanical amplitude.

Long Answer Questions (5 Marks)

8. Describe postulates of quantum mechanics.

Or

Explain quantum condition and uncertainty relation.

J.D.B. Government Girls' College, Kota

M.Sc. SEM-I

Paper-104 (Advanced Electronics)

Monthly Test

Maximum Marks: 15

Very Short Questions (1 Mark each)

1. Write down the frequency of Microwave.
2. Define reflection coefficient.
3. What do you mean by passive microwave components?
4. What do you mean by standing wave ratio?
5. What do you mean by rectangular cavity resonator?

Short Questions (2.5 Marks each)

6. Write a short note on reflection coefficient.
7. Describe TM mode in circular waveguide.

Long Answer Questions (5 Marks)

8. Explain smith chart in detail.

Or

Derive an expression for line impedance.

प्राचार्या

राजकीय कन्या महाविद्यालय, कोटा