



# KUVEMPU UNIVERSITY

## OFFICE OF THE DIRECTOR

### DIRECTORATE OF DISTANCE EDUCATION

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## TOPICS FOR INTERNAL ASSESSMENT ASSIGNMENTS (2017-18)

### Programme: M.Sc. PHYSICS (Previous)

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*Note: Students are advised to read the separate enclosed instructions before beginning the writing of assignments.*

*Out of 15 Internal Assignment marks per paper, 5 marks will be awarded for regularity (attendance) to Counseling/ Contact Programme/ Practical classes pertaining to the paper. Therefore, the topics given below are only for 10 marks each paper.*

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### Paper I: MATHEMATICAL METHODS AND CLASSICAL MECHANICS

1. Arrive at the Orthogonality relations for Hermite polynomials

**5 Marks**

2. Discuss the motion of a system of particles there are no external forces and external torque acting on it

**5 Marks**

### Paper II: QUANTUM AND STATISTICAL MECHANICS

1. Explain how a linear operator acting on vector space is represented by a matrix in certain basis

**5 Marks**

2. Obtain an expression for the distribution function at equilibrium for bosons.

**5 Marks**

### Paper III. SOLID STATE PHYSICS

1. Describe the seven crystal system with suitable diagramme.

**5 Marks**

2. Outline the Sommerfeld's theory of electrical conductivity in metals

**5 Marks**

## Paper IV.

## ELECTRONICS

1. State and prove the Thevenin's theorem with circuit diagram.

**5 Marks**

2. What are ideal characteristics of an op-amp? Explain how op-amp can be used as adder circuit

**5Marks**

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