

B.Sc. DEGREE EXAMINATION, ODD SEMESTER 2020
II Year III Semester
Mathematical Physics and Statistical Mechanics

Max.marks :25

Answer any **FIVE** questions ($5 \times 5 = 25$) Marks

1. Find the Characteristic equation of the given matrix and verify Cayley Hamilton theorem $\begin{bmatrix} 1 & 2 & 3 \\ 2 & -1 & 4 \\ 1 & 1 & 1 \end{bmatrix}$.
2. Evaluate Gamma Function.
3. Show that $\int_0^\infty \frac{x^8(1-x^6)}{(1+x)^{24}} dx = 0$.
4. Obtain the solution of Laguerre's differential equation.
5. Explain the postulates of statistical Mechanics.
6. Describe canonical ensemble and Grand canonical ensemble.
7. Give the comparison between MB, FD and BE statistics.