Biyani Girls College
Model Test Paper-2015-16
Mathematical Physics

Time- 3 Hours   **Maximum Marks- 100**

Unit-I

1.   Obtain an expression for $\nabla\emptyset$ in orthogonal curvilinear c-ordinates. Use the result for determining this in cylindered and spherical coordinate.

2.   Define Dirac delta function and write and prove five properties of it.

Unit-II

3.   Deduce Lorentz transformation relation for position?

4.   Answer the following questions-
     a.   Define four vector momentum
     b.   Define four vector frequency vectors.

Unit-III

5.   Answer the following questions-
     a.   Deduce Lorentz transformation of an electric field and magnetic field.
     b.   Define pair production..

6.   Establish following recurrence relation.
     a.   Define four vector momentum

Define four vector frequency vectors