NUMBER THEORY - II (I)

Time : Three Hours] [Maximum Marks : 40

Note : Attempt *five* questions selecting *two* questions each from Section A and B and the compulsory question of Section C.

Section - A

1. (a) Show that the continued fraction which represents a quadratic surd is periodic. 4
    (b) Show that there are no positive integral solutions of
         $x^4 + y^4 = z^2$. 4

2. (a) Show that

Section - C
(Compulsory Question)

9. Attempt all the following pars in short :
   - (a) Define Secondary metabolite.
   - (b) Explain Siderophores.
   - (c) Define Biopesticides.
   - (d) Write two important biosafety guidelines.
   - (e) Define IPR.
   - (g) Give *two* GMO used for enzyme production.
   - (g) Write sources of Penicillin.
   - (h) Name *two* Nitrogen fixer cyanobacteria.
   - (i) Define Indirect bioleaching.
   - (j) Give *two* examples of Biopersicides.
   - (k) Define Antibiotics.

(2×11=22)