



BD-225

Seat No. _____

B. Sc. (Sem. - VI) Examination

March/April - 2014

CC-MATH-604A : Graph Theory

(New Course)

Time : 3 Hours]

[Total Marks : 70

Instruction : All questions are compulsory.

- 1 (a) Define isomorphic graphs with illustration.

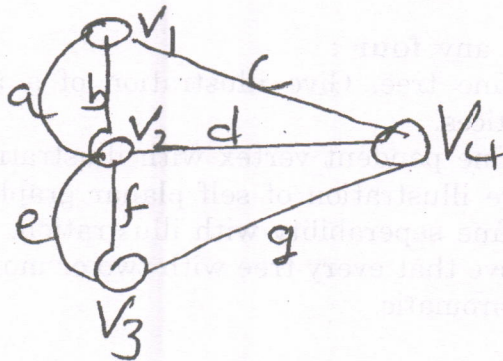
OR

- (a) Define complete graph with illustration.

- (b) Attempt any **two** :

- (1) Define union of two graphs with illustration
- (2) Define components with illustration.
- (3) Define vertex connectivity with illustration.

- 2 (a) Define cut set. Find two cut sets from the given graph



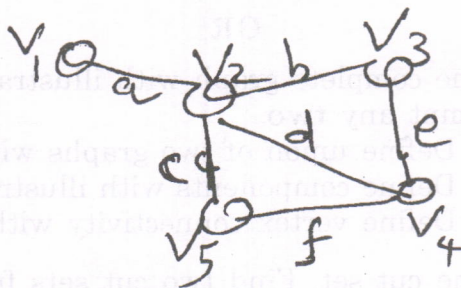
OR

- (a) Define planar graph with illustration.
- (b) Attempt any **two** :
 - (1) Explain detection of planarity with illustration.
 - (2) Explain geometric dual with illustration.
 - (3) Prove that K_5 is non-planar graph.

3 (a) Explain properties of adjacency matrix.

OR

- (a) Define incidence matrix with illustration.
- (b) Attempt any **two** :
 - (1) Define adjacency matrix. Find adjacency matrix for the given graph



- (2) Define acyclic digraph with illustration.
- (3) Explain diacyclization

4 Attempt any **four** :

- (1) Define tree. Give illustration of a tree with 'q' vertices.
- (2) Define pendent vertex with illustration
- (3) Give illustration of self planar graph
- (4) Define seperability with illustration.
- (5) Prove that every tree with two or more vertices is 2-chromatic.