

**F.Y.B.SC. (Computer Science) SEM –II (2014 COURSE) : WINTER - 2018**  
**SUBJECT: GRAPH THEORY**

Day: Monday  
 Date: 15/10/2018

W-2018-0948

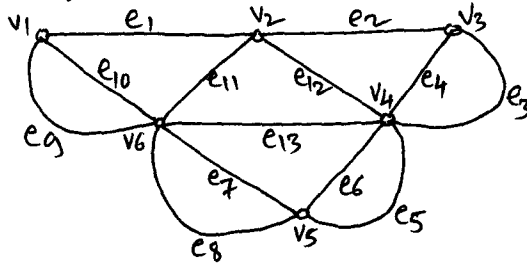
Time: 03.00 PM TO 05.00 PM  
 Max. Marks: 40

**N.B.:**

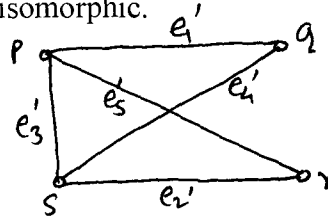
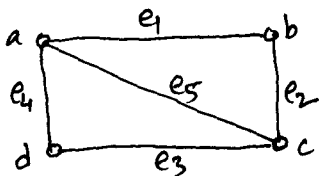
- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.

**Q.1** Attempt any **TWO** of the following: **(10)**

a) Find the adjacency matrix and incidence matrix for the following graph.



b) Show that the following two graphs are isomorphic.

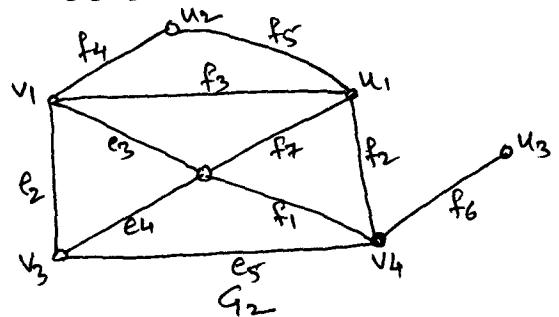
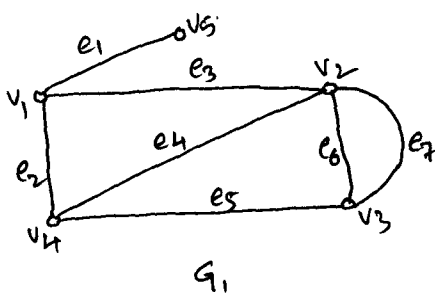


c) State and prove Hand shaking lemma.

**Q.2** Attempt any **TWO** of the following: **(10)**

a) Find:

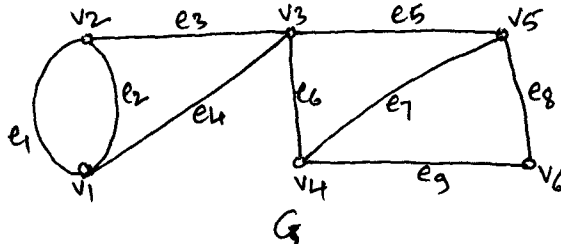
$G_1 \cap G_2$ ,  $G_1 \cup G_2$  and  $G_1 \oplus G_2$  for the following graph  $G_1$  and  $G_2$ .



b) For the following given graph G:

i) Find induced subgraph  $G \langle V \rangle$  where  $V = \{v_1, v_2, v_5, v_6\}$

ii) Find  $G - A$  where  $A = \{e_1, e_2, e_8, e_9\}$



c) Find the diameter of Peterson's graph.

**P. T. O.**

