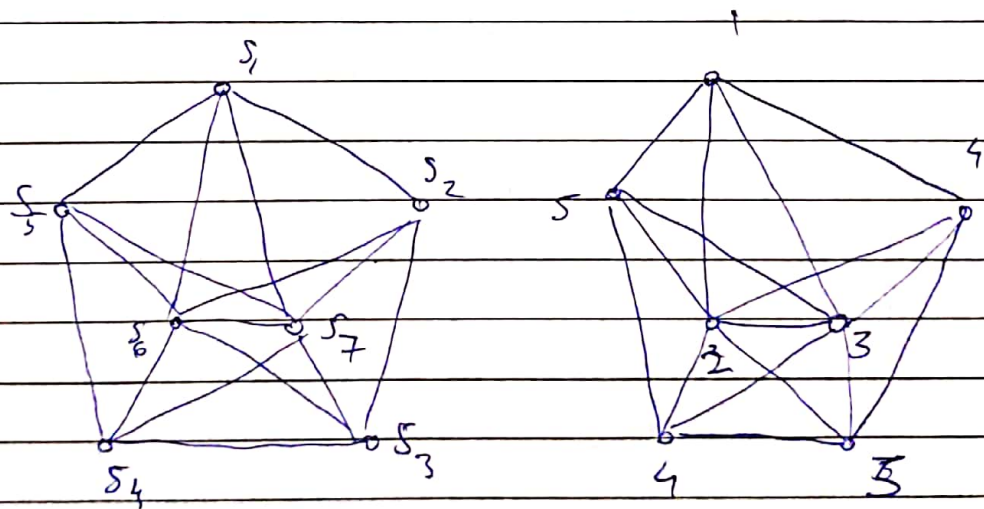


(Q1) Eight faculty members denoted by  $f^1, f^2, \dots, f^8$  have been invited to workshop to discuss 7 topics of interest. It is decided it would be more efficient to divide these faculty members into 7 committees. —

No 2 committees can meet during the same time period if some faculty member belongs to both committees.

We define a graph  $G$  as  $V(G) = \{s_1, s_2, \dots, s_7\}$  where 2 vertices  $s_i$  and  $s_j$  are adjacent if  $s_i \cap s_j \neq \emptyset$  and so  $s_i$  and  $s_j$  must meet at different times.

We depict the graph as :-



The answer to this question will be  $\chi(G)$ .

Here  $\omega(G) = 4$  and so  $\chi(G) \geq 4$ . The 5-coloring below shows that  $\chi(G) \leq 5$ . Since no 4-coloring of  $G$  is possible,  $\chi(G) = 5$ . Possible meeting times are :-

$S_1$ : 9-10 am

$S_6$ : 10-11 am

$S_7$ : 11 AM-12 Noon

$S_2, S_4$ : 2-3 PM

$S_3, S_5$ : 3-4 PM