§8.1 Problems: 5, 6, 7, 9, 10, 11, 12, 13, 14, 27, 28, 29, 33 (34, 44, 45) Bonus ← I will do these.

§8.2 Problems: 5, 6, 12, 15, 18, 19, 20, 23, 25, 26, 30, 32, 33, 41

please grade the circled problems for 1/2 point each. The rest may have 1/4 point without grading.

$$\text{total} = \underbrace{(2.5+1.5)}_{\S 8.1} + \underbrace{(2.5+2)}_{\S 8.2} = 8.5.$$

In §8.1, problems # 34, 44, & 45 were bonus problems. I can take care of those. Thanks. Hamid

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§8.1: #7) There is no Euler Cycle because vertices b and d have odd degrees, $\delta(b) = \delta(d) = 5$.

#12) $V = \{v_1, v_2, v_3, v_4, v_5\}$, $E = \{e_1, e_2, e_3, e_4, e_5, e_6, e_7, e_8\}$

There are no parallel edges. There are no loops.

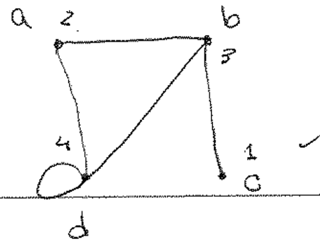
There are no isolated vertices. G is simple, e_1 is incident on v_2 & v_4.

#28)

Path	length
c, a, b, e, d	23 ← optimal path.
c, e, b, a, d	26
c, b, a, e, d	24
d, a, b, e, c,	26

§8.2

#15) 4 vertices having degrees 1, 2, 3, 4

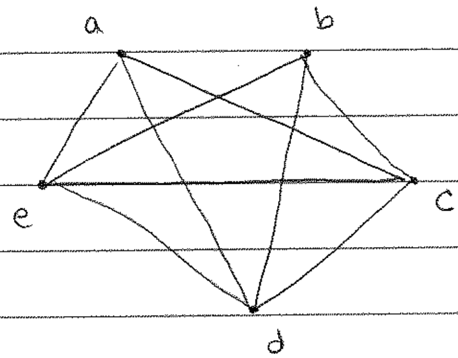


#18) simple graph, 5 vertices having degrees 2, 2, 4, 4, 4.

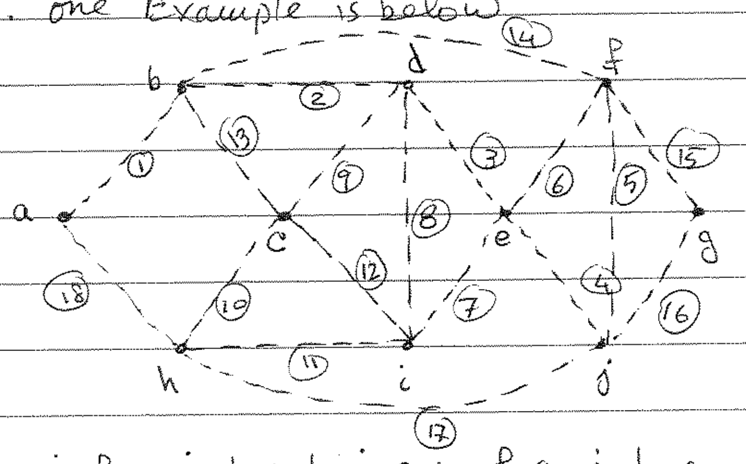
No such graph can exist.

Suppose the vertices are $V = \{a, b, c, d, e\}$ where $\delta(a) = \delta(b) = 2$ and $\delta(c) = \delta(d) = \delta(e) = 4$.

Since $\delta(c) = 4$, c is adjacent on a, b, d, and e. Similarly, d is adjacent on a, b, c, and e, Finally, e is adjacent to a, b, c, and d. This forces the vertices a and b having degrees 3.

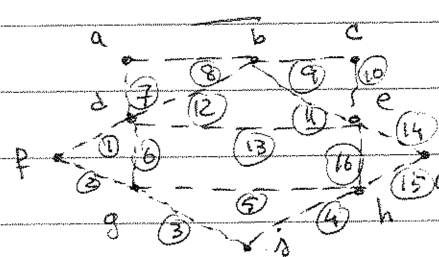


32) The graph has an Euler cycle since all vertices have even degrees. one Example is below



c, b, d, e, j, f, e, i, d, c, h, i, c, b, f, g, j, h, a

#41)



d, f, g, j, h, g, d, a, b, c, e, b, d, e, i, h, e