ASSIGNMENT 6 : Solutions

1. (a) 2. (a) 3. (d) 4. (d) all of above

5. (b) 6. (d) 7. (b) 8. (b) 9. (b)

10. Given $f = 1.8\,GHz$, $\epsilon_r = 2.2$, $h = 0.16\,cm$

and patch length $= L = 55\,mm = 5.5\,cm$

10.1 if h - doubled, fringing field ↑.

$\therefore \Delta L = \frac{h}{\sqrt{\epsilon_{eff}}} = 0.11\,cm.$

$(\epsilon_{eff} \lesssim \epsilon_r \Rightarrow \epsilon_{eff} = 2.1)$

$\therefore$ modified patch length $= 5.5 - 0.22 \approx 5.3\,cm$

$= 53\,mm.$

(C)

10.2 Parasitic patch length should slightly less than the center fed patch. Therefore approx. length of parasitic patches should be $53.5\,mm$. (a)

10.3 The approx gain for this conf. (10.2) will be $8.5\,dBi$.