1) For circuit in Fig 1, **3 marks**

i) Obtain the Norton equivalent to the left of terminals a-b;

ii) Hence use the result to find current i.

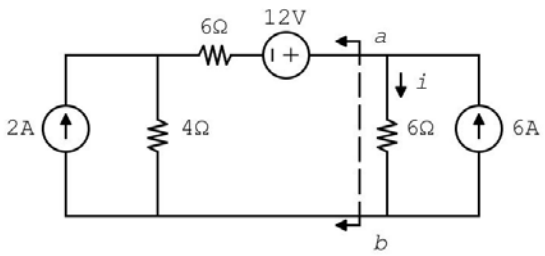

Fig 1

2) By obtaining the Thevenin equivalent of the circuit in Fig 2 seen across R, **3 marks**

i) Determine the value of R for maximum power to be delivered to R

ii) Maximum power delivered

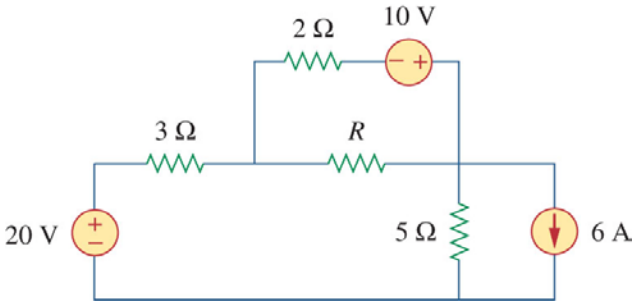

Fig 2

3) For the circuit in Fig 3, find v_1 and v_2. **4 marks**

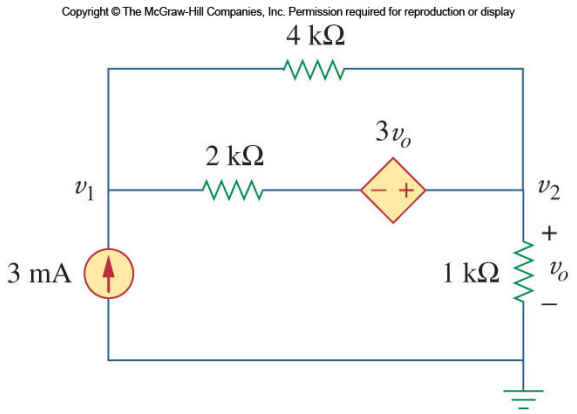

Fig 3

4) Express the following in their polar and Euler forms **3 marks**

i) $2\sqrt{3}+2j = 4\angle 30° = 4e^{(\pi/6)i}$

ii) $-6-6j = (6\sqrt{2})\angle\text{-}135° = (6\sqrt{2})e^{(-3\pi/4)i}$

iii) $5-5\sqrt{3}j = 10\angle\text{-}60° = 10e^{(-1\pi/3)i}$

5) Calculating following complex number **3 marks**

i) $(8-3j)\times(4+6j) = 50+36j$

ii) $(3+5j)/(8-2j) = 7/34+(23/34)j$

iii) $1/(2-3\sqrt{3}j) = 2/31+(3\sqrt{3}/31)j$