**HW1** An antenna with a radiation impedance of 50+j10 ohm, with 5 ohm loss resistance, is connected to a generator with open-circuit voltage of 20 v and an internal impedance of 10 ohms via a λ/4-long transmission line with characteristic impedance of 75 ohms.

(a) Draw the equivalent circuit

(b) Determine the power supplied by the generator.

(c) Determine the power radiated by the antenna.

(d) Determine the reflection coefficient at the antenna terminals.

**HW2** Choose the best answer of the following**:**

1. quasi-static electromagnetic field is the
2. low frequency b)high frequency c) time independent d) none of the above
3. Displacement current is taken to be negligible (compared to the conduction current) if
4. >> b) c) =0 d) (a and c)
5. The transmission line act as inductor when it terminated by:
6. Open circuit load b) short circuit load c)matched load d)none of the above
7. The scattering aperture equals to the effective aperture when the antenna is:
8. Complex conjugate matching b) short circuit c) open circuit d) none of the above
9. The isotropic point source has directivity of:
10. Infinity b)1 c) 0 d)1.5
11. The directivity of an isotropic antenna is
12. 1 dB b)0 dB c)1.67 dB d) infinity

7- The normalized radiation intensity of an antenna is represented by:

half-power beamwidth HPBW in degree is:

1. The radiation intensity of the major lobe of an antenna is represented by *U* = *B0* *cos* *θ for* (0 ≤ *θ* ≤ π/2, 0 ≤ *φ* ≤ 2π)the directivity is:
2. 0dB b) 3 dB c)12 dB d)6.04 dB
3. For short circuit terminated transmission line is given by:
4. b) c) 0 d) ZL
5. the skin depth or penetration depth for couper plate at f=10kHz is ()
6. 0.666 mm b) 66m c) 1 nm d) 10 mm