

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS DEPARTMENT OF ELECTRICAL ENGINEERING
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EE 672	Satellite Communications	QUIZ # 2
Semester (072)	Section (01)	31 March, 2008

NAME :		
I.D. # :		Score : / 10

- 1) Calculate the exact maximum directivity of an antenna with radiation intensity given by:

$$U = U_m \cos^6 \theta \text{ for } 0 \leq \theta \leq \frac{\pi}{2} \text{ and } 0 \leq \phi \leq 2\pi .$$

- 2) Calculate the half-power beam-widths (θ_{HP1} and θ_{HP2}) in two perpendicular planes containing the direction of maximum radiation.
- 3) If the approximate directivity is obtained from: $D_o = 4\pi / (\theta_{HP1} \cdot \theta_{HP2})$, where θ_{HP1} and θ_{HP2} are expressed in radians; calculate the percentage error in obtaining the approximate directivity.
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