

Homework # 16- Due Tuesday 3/14/06, Assigned 3/2/06

1. Let $A = T_n(k)$ be the algebra of upper triangular matrices. In class we computed $\text{Rad}(T_n(k))$. Define

$$\text{Rad}^i(A) = \text{Rad}(\text{Rad}^{i-1}(A)).$$

For each $i > 0$ determine $\text{Rad}^i(A)$ and the simple modules for $\text{Rad}^i(A)$.

2. Define the *socle* of A , $\text{soc}(A)$, to be the largest semisimple submodule of A . Find $\text{soc}(T_n(k))$.