b) What is the Church-Turing Thesis?

c) Give a total binary valued function that is not computable.

d) Is there an unrestricted grammar generating the following language:

$$NSA = \{ e(T) : T \text{ does not accept } e(T) \}$$

Why or why not?

d) Is the following problem decidable: Given an unrestricted grammar $G$ and a word $w$, does $G$ generate $w$? Give a two-sentence reason for your answer.
e) Give a T.a. language that is not T.o.l.
f) Give a language that is not T.a.

9) Show that T.a. langs. are closed under finite union.

h) Are T.a. langs. closed under infinite union?
   Prove your answer.

i) What does the universal TM do?

j) Give a statement of the Halting Problem

k) What is the language associated with the Halting Problem
2. Show that the following function is not computable:

\( f(m, n) \) is the maximum number of steps any halting computation or crashing computation can take of a Turing machine with \( m \) states on an input of length \( n \).

Hint: Show that if \( f \) was computable then you could use it to decide the Halting Problem.

3. Show that the set of infinite binary sequences is uncountably infinite.

4. Show that the Halting Problem is undecidable.