

## PHYSICS-2

### Elementary Physics of Energy

#### Quiz 1

Date: APRIL 12, 2011 in class

Time 20 minutes

Your name:

1. In Figure 1., we are given three curves for the Hubbert  $Q(t)$  function for some resource discussed in class, where time  $t$  is in the units of a standard time  $T_0 = 1yr$ . Give answers as (A) or (B) or (C).

(i) One of the curves is “impossible”; which one is it?

**A**

(ii) Which curves corresponds to a non renewable resource?

**B**

(iii) Which curve is most promising for a buyer?

**C**

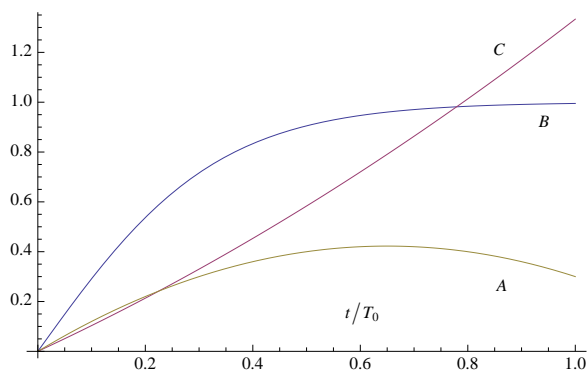


Figure 1: Three plots of the Hubbert function  $Q(t)$  for some resource.

2. (a) The following problem has a piece of information that is missing for completion. Identify that piece and give a short answer.

*An engine acts on a body with a force of 2 Newtons and moves it by 2 meters.*

*Find the power of the engine.*

Missing piece=**Time**

(b) Define a calorie: **The energy required to raise the temperature of 1g water by 1°C.**

3. Denote kinetic, potential, electrical, chemical, nuclear and heat energies by their first letter (e.g. kinetic = k). For the following common objects, identify their primary source of energy among the above class

(a) Batteries

**C**

(b) Coal power Plants

**C or H**

(c) The Hoover Dam

**P**