The Human Body
Case Study
Parts of the Brain

Before Class
Complete questions 1 and 2: Identify the brain areas listed and describe their functions

Read the article: When does the brain go blank? by Christine Gorman

1. Identify the position of each of the following brain areas within the brain figure provided
   a. cerebral cortex (surface of the cerebrum)
   b. thalamus
   c. midbrain
   d. pons
   e. medulla
   \(\text{brain stem}\)

2. Briefly describe the major function(s) of the brain areas listed in question 1 (refer to text p256-258, p265--267).
In Class:
Read the following excerpts from the April 4, 2005 Canadian Edition of Time magazine and then, using your textbook as a guide, respond to the questions. Each group should hand in one set of responses before the end of the class period.

**Timeline: The Legal Struggle** (Frank, 2005)
1990 Terri Schiavo suffers brain damage during cardiac arrest, a result of a potassium imbalance that may have been caused by her suspected bulimia. She emerges from her coma but does not regain consciousness. A Florida court appoints her husband Michael guardian. (Frank, 2005)

**Neurology: When Does the Brain go Blank?** (Gormon, 2005)
Much of the ammunition in the battle over Terri Schiavo’s fate has been medical language that’s fairly new in the public realm. The terms can mean one thing to experts and another thing entirely when wielded by passionate partisans in the debate. On the basis of interviews with specialists in the fields of neurology and palliative care, we offer answers to some of the most perplexing questions:

**What is a persistent vegetative state?** People who suffer enough brain damage that they are unaware of themselves or their surroundings, but still demonstrate certain reflexes and are able to breathe and pump blood on their own, are in what doctors call a vegetative state. If that condition lasts for at least a month without any sign of improvement, the diagnosis may be changed to persistent vegetative state (PVS).

**Is that the same as being brain dead?** No. Brain death occurs when there is no activity anywhere in the brain. In PVS, certain primitive regions of the brain, including the brain stem, which controls autonomic functions such as breathing and the beating of the heart, are still alive. However, the cortex, which is the thinking part of the cerebrum, and/or the thalamus, which connects the brain stem to the cortex, are so badly damaged that they no longer function.

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3. In a person in a persistent vegetative state,
   a. which areas of the brain remain active?
   b. which areas of the brain are inactive?
4. Explain how it is possible for persons in a vegetative state to exhibit reflexes.
5. What is a coma? How does a coma differ from a vegetative state? (refer to handout)
6. Give examples of one somatic reflex (p 272-274) and one autonomic (visceral) reflex (refer to class notes) that could be wrongly perceived as “conscious awareness.” Justify your choices.