1. Describe the exact anatomic location and histological structure of the pineal gland, and describe the effect of light on the production of melatonin.

The Pineal Gland is located at the core of the brain. It is on between the cerebellum, Pons, and corpus curiosum. The pineal gland produces the serotonin derivative melatonin. It is a hormone that controls the sleeping and awakening of the body.

2. Describe the pathway connecting the photoreceptors of the eyes to the pineal gland.

The pineal Gland is attached to the end of the backside end of the roof of the third ventricle in the brain. It is along the middle of the Corpus callosum.

3. How is the pineal gland functionally related to the adrenal medulla?

The pineal gland is functionally related to the adrenal medulla because it converts different signals from the sympathetic nervous system into a hormonal signal.

4. Define the term circadian rhythm, and cite examples of physiological events that occur as a result of such patterns.

The circadian rhythm determines the feeding and sleeping patterns of all animals including humans.

5. Describe the condition known as seasonal affective disorder, and discuss the treatment of this condition.

The seasonal affective disorder, ironically abbreviated SAD is a disorder that occurs at the same time every year. The SAD is a depression that occurs in the fall and continues on into the winter. Hardly ever will it happen in the early summer or fall. It is almost like the winter blues. The treatments that a person can go through would be psychotherapy and medication.

6. Describe the use of melatonin in the treatment of “jet lag” and insomnia associated with aging.

Melatonin is a hormone that controls the sleep and wake cycle. Light affects how much melatonin your body produces. The shorter days of the winter months, your body may produce melatonin either earlier or later in the day than usual. In jet lag, when flying from a far place to place our bodies become out of rhythm from our usual shifts of the sleep and wake cycle. Insomnia is a smaller problem along the lines of SAD. Insomnia occurs when a person has trouble sleeping during the night consistently and has problems during the day. As these problems of lack of sleep go on you get insomnia. So with melatonin it will regulates these problems if taken right before it can happen.

7. Are any serious side effects known to occur as the result of the
administration of melatonin?

Too much melatonin is not good and can mess up the cycle of the sleep and wake cycle.

8. List some environmental stresses that can affect pineal function.

Light is an environmental cause that can decrease the output of melatonin. This is what causes the SAD effect. The brain is not getting the needed amount that is needed to act normally. In different seasons the lighting from the sun is different because the Earth is further or closer from the sun. The changes in lighting screw up the cycle of melatonin.

9. Does the structure of the pineal gland change as we age?

The pineal glands don’t age. A test was done in autopsies on 90 year old people and the pineal glands were compared to younger pineal glands and the sizes were no different.

10. How did the pineal gland get its name?

Another word for pineal gland is epiphysis. Epi means upon and physis means to grow. The term epiphysis cerebra is more accurate than pineal gland.
http://www.vivo.colostate.edu/hbooks/pathphys/endocrine/otherendo/pineal.html (what is the pathway of the pineal gland)

http://www.wayfinding.net/pineal.htm (exact location of the pineal gland, and functional relation.)

http://www.sciencedaily.com/articles/c/circadian_rhythm.htm

http://www.mayoclinic.com/health/seasonal-affective-disorder/DS00195