

- 3) A variety of drugs are available to reduce stomach acid in patients, but all use one of three mechanisms. Describe **three** distinct routes of actions of antacid drugs that are in common use. **(6 points)**.
- 4) Patients with a stomach ulcer (peptic ulcer) are typically prescribed an antacid, and are told to avoid certain foods and beverages. In addition, they are told to discontinue taking one type of drug. Which drugs are contraindicated in patients with peptic ulcers? **(4 points)**.
- 5) In addition to antacids, many patients with stomach ulcers receive one additional type of medication. What is the most common medication (other than antacids) provided to these patients? **(4 points)**.

- 6) Some medical conditions can result in metabolic acidosis or alkalosis, although most do not. For the medical conditions listed below, indicate whether a change in blood gas levels will likely result as a consequence of metabolic acidosis or alkalosis. Provide a justification for your answer. **(4 points each; 12 points total).**

Medical Condition	Will the Condition Alter Blood Gases by Producing Metabolic Acidosis or Alkalosis? (Include justification).
<i>Cholecystokinin-Secreting Tumor</i>	
<i>Gastrin Secreting Tumor</i>	
<i>Type 1 Diabetes</i>	

- 7) Following menopause, women are at risk for osteoporosis. Thoroughly explain why osteoporosis is more common in post-menopausal women than women of reproductive age. **(5 points)**.
- 8) An individual has been treated with cortisol with several months, and while traveling in a different country is admitted to a hospital. The hospital runs a blood test on the person, without being told about the patient's cortisol treatment. They are surprised that some blood values are abnormal. Indicate two blood values that are likely abnormal in the patient, and briefly justify your answer. **(5 points)**.

9) Parathyroid cancer is relatively common. Discuss the major physiological consequence of parathyroid cancer. **(5 points)**.

10) Men with varicocele have reduced venous drainage from the scrotum. This problem is also associated with male infertility. Briefly describe why varicocele results in male infertility. **(5 points)**.

11) A combination of estrogen and progesterone has been used for decades as a contraceptive for women.

a) Would providing testosterone to a man also serve as a chemical contraceptive? **(5 points)**.

b) What negative side effect could result from a testosterone contraceptive in males? **(5 points)**.

c) An effective chemical contraceptive without appreciable side effects has been generated for males. What chemical or chemicals would constitute such a contraceptive? Provide a brief rationale for your answer. **(5 points)**.

- 12) A female is born with a genetic mutation such that the FSH receptor is dysfunctional (will not bind FSH). Would such an individual develop secondary sexual characteristics? Provide an explanation for your answer. **(4 points)**.
- 13) The placenta provides direct nourishment of the fetus, and in addition secretes hormones that are critical for the maintenance of the pregnancy. List **three** hormones that are secreted by the placenta and maintain pregnancy. **(6 points)**.

- 14) Medical intervention is sometimes necessary to induce parturition (childbirth). What drug or drugs are used to induce parturition. Provide a brief description of the physiological action of the drug(s) that you indicated. **(5 points)**.
- 15) Galactagogues are drugs that induce or increase lactation. One such galactagogue is domperidone, a dopamine receptor antagonist that does not cross the blood brain barrier. Briefly describe the mechanism of action of domperidone that serves to increase lactation. **(5 points)**.

16) Preeclampsia and eclampsia are the most common severe complications of pregnancy. If not managed properly, these conditions can sometimes result in death of the mother.

a) What is the major indicator of preeclampsia that obstetricians look for during pregnancy? **(3 points)**.

b) In general, what is the etiology of preeclampsia (i.e., what “goes wrong” during pregnancy to result in the condition)? **(4 points)**.

c) What is the definitive treatment for preeclampsia? **(3 points)**.