

2) In each panel below, indicate when in the menstrual cycle each hormone is in peak (highest) concentration in plasma. **(2 points each; 10 points total).**

a) Estradiol



b) Progesterone



c) Inhibin



d) LH



e) FSH



3) A patient has tumor that secretes excessive amounts of parathyroid hormone. What changes in the following physiologic responses would be expected in this patient? **(2 points each; 8 points total)**

a) Q-T Interval of ECG

Shorter than Normal Normal Longer than Normal

b) Neural Activity

Higher than Normal Normal Less than Normal

c) Water Loss in Urine

Higher than Normal Normal Less than Normal

d) Phosphate Reabsorption in Proximal Tubule

Higher than Normal Normal Less than Normal

- 4) An individual who has recently moved to high altitude is experiencing lightheadedness and a slow heart rate. When a physician attempted to check their blood pressure, the arm on which the cuff was placed began to spasm. Describe why high-altitude exposure resulted in these signs and symptoms. **(10 points)**.

- 5) Agonists for glucocorticoid receptors are often used to treat ulcerative colitis. Briefly describe why such drugs are used to treat this condition. **(10 points)**.

6) Contraceptives taken by women are typically either a combination of estrogen and progestin or progestin alone. Indicate below the physiologic changes associated with each type of contraceptive. **(2 points each; 10 points total).**

a) Inhibits ovulation

Progestin Only	Estrogen + Progestin	Both Types
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b) Thickens cervical mucus

Progestin Only	Estrogen + Progestin	Both Types
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c) Associated with negative side effects such as weight gain, nausea, and mood changes

Progestin Only	Estrogen + Progestin	Both Types
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d) Lightens menstrual bleeding by keeping the endometrium thin

Progestin Only	Estrogen + Progestin	Both Types
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e) The contents of most emergency contraceptives such as Plan B

Progestin Only	Estrogen + Progestin
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7) For each of the following, indicate the most important factor that causes its release.
(3 points each; 15 points total).

a) Gastrin

b) Pepsin

c) Cholecystokinin

d) Bile

e) Secretin

- 8) A patient develops a tumor of d-cells in the stomach, which secrete excessive amounts of somatostatin. How would this hormone effect stomach physiology? **(10 points)**.

- 9) PITT pharmaceuticals develops a new drug that completely inhibits the COX-1 enzyme, without any effects on the COX-2 enzyme. What would be the beneficial effects of the drug, and what negative side effects would likely occur? **(9 points)**.

10) A patient develops a tumor that secretes large amounts of glucagon (glucagonoma). How would the tumor affect the following aspects of the patient's physiology? **(2 points each; 10 points total).**

a) Blood Glucose Levels

Lower than Normal Normal Higher than Normal

b) Body Weight

Lower than Normal Normal Higher than Normal

c) Prevalence of Ketoacidosis

Lower than Normal Normal Higher than Normal

d) Urine Volume

Lower than Normal Normal Higher than Normal

e) Muscle Mass

Lower than Normal Normal Higher than Normal

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FINAL Exam
December 13, 2019