DISCLAIMER: This study test is only meant to help you study for Physiology. I am not the professor, nor a TA, which means that I do not guarantee that the answers provided are correct. This also means that I do not guarantee that these questions will appear on the test. I do however guarantee you the best of luck!

1. Which of the following binds to a nuclear receptor?
   a. Prolactin
   b. GH
   c. Insulin
   d. Cortisol ***
   e. None of the above

2. Which of the following is NOT true regarding Paracrine cells?
   a. Block effects of neighboring cells
   b. Can be Agonistic
   c. Can be Antagonistic
   d. Somatostatin is a secretion
   e. Also called Juxtacrine
   f. All of the Above are Correct ***

3. 25 year old non-pregnant female presents with irregular menstruation, ovulation, sometimes she feels really depressed, she vomits, sleep disorder, sweating, her doctor put her diagnosis as infertility. What would be an endocrinologists’ diagnosis?
   a. Deficiency of serotonin
   b. Excess of norepinephrine
   c. Excess serotonin
   d. Deficiency of dopamine ***
   e. Excess dopamine

4. Prolactin has a natural antagonist ______________, in patients with a deficiency, a synthetic form ____________ can be given.
   a. Norepinephrine, Propranolol
   b. Norepinephrine, Albuterol
   c. Dopamine, Bromocriptine ***
   d. Oxytocin, Demoxytocin
   e. Oxytocin, Atosiban
5. As Prolactin levels increase, which of the following suppresses?
   a. FSH
   b. GH
   c. Testosterone
   d. Estrogen
   e. All of the above ***

6. What is the 2nd messenger for GPCRs?
   a. cAMP*** (correct according to BRS)
   b. IP3
   c. AC
   d. A and B
   e. B and C *** (correct according to slides)

7. Follicular Stimulating Hormone, gets secreted from ______, travels to ___________ to show its physiological effect.
   a. Anterior Pituitary; Testes ***
   b. Anterior Pituitary; Placenta
   c. Posterior Pituitary; Gonads
   d. Posterior Pituitary; Ovary
   e. Hypothalamus; Anterior Pituitary

8. If fertilization were to occur, which hormone maintains the endometrium for implantation? Which one would lead to spontaneous abortion?
   a. Prolactin; Prolactin
   b. Oxytocin; Prolactin
   c. FSH; Progesterone
   d. Estrogen; Prolactin
   e. Progesterone; Progesterone

9. Which of the following hormones is made by the hypothalamus?
   a. TRH Thyroid Releasing Hormone ➔ TSH and Prolactin
   b. GnRH Gonadotropin releasing hormone ➔ FSH & LH
   c. ADH (This and Oxytocin are made here, stored in the Pituitary)
   d. CRH (Corticotrophin releasing hormone ➔ ACTH)
   e. Dopamine yes, inhibits prolactin secretion, associated sleep disorder
      (These are all correct!)
10. Which of the following would NOT cause the Renin-Angiotensin Aldosterone System to be activated?
   a. A patient gets into a tragic car accident with lots of lacerations
   b. Glomerulonephritis decreasing the perfusion rate
   c. Cushing Diseases ***
   d. Addison’s Disease
   e. During surgery, a young surgeon cuts an artery and loss of blood

11. Which of these are/is a Catecholamine?
   a. Aldosterone
   b. Cortisol
   c. Insulin
   d. Adrenaline ***
   e. A and B

12. A 35-year-old Caucasian female presents to the hospital alarmed by her recent truncal weight gain, facial hair growth, and thinning skin. During the physical exam, the physician finds that the patient is hypertensive. Serum analysis reveals hyperglycemia. Which test results would confirm the patient to have Cushing’s Disease?
   a. Increased CRH, Decrease Aldosterone
   b. Increased Body hair, decreased blood sodium level
   c. Irregular Menstruation, and increased adrenocorticoids levels ***
   d. Hypokalemia, hyponatremia
   e. A blood pressure check would come up normal (~120/80)

13. Thyroid hormone plays which of the following effects?
   a. Ossification and fusion of cartilage (bone)
   b. Maturation of PNS (CNS)
   c. Has a similar effect to Parasympathetic Stimulation (sympathetic)
   d. increases body temperature ***
   e. all of the above

14. PTH acts to increase Ca^{2+} levels in the blood by targeting which area(s)?
   a. Bones
   b. Epithelial Cells of Small Intestine
   c. Kidney
   d. All of the above***
15. To stimulate the secretion of insulin by β cells, glucose travels through ________, by this, we see an increase in intracellular energy in the form of ATP by this we see a(n) ________.
   a. GLUT$_2$; decrease in intracellular K$^+$
   b. GLUT$_4$; decrease in intracellular K$^+$
   c. GLUT$_2$; increase in intracellular K$^+$ ***
   d. GLUT$_4$; increase in intracellular K$^+$
   e. GLUT$_2$; decrease in intracellular Ca$^{2+}$

16. Glucagon increases all of the following except?
   a. Glycogenolysis
   b. Gluconeogenesis
   c. Glycolysis ***
   d. Urea Production

17. A 14-year-old Caucasian male of normal weight presents for a well-child checkup. During physical examination, his parents state that their son has been frequenting the bathroom more often than usual and his weight has decreased despite an increase in his caloric intake. A hematocrit would show increase in WBC. Which of the following is most consistent with their son's symptoms? (He has Type I diabetes)
   a. Increased Insulin Secretion
   b. Self-Reacting T cells***
   c. Absence of leukocytic infiltration into the pancreas
   d. Hypoglycemia
   e. Amyloid deposits in pancreatic islet cells

18. A newborn whose mother had uncontrolled diabetes mellitus during pregnancy is likely to have which of the following findings? (Hint: Everything physiological is homeostatic)
   a. Atrophy of pancreatic islets cells
   b. Hypoglycemia ***
   c. Hyperglycemia
   d. Amyloid deposits in pancreatic islets
   e. Ketoacidosis

19. Aspirin and some other drugs can target enzymes that use which of the following as a substrate?
   a. Cyclooxygenase
   b. Arachidonic acid ***
   c. Tyrosine
   d. 1,4,5 initotriphosphate
   e. Prostaglandins
20. The source of estrogen and progesterone during the last seven months of pregnancy is the:
   a. Ovary
   b. Placenta ***
   c. Corpus luteum
   d. Anterior pituitary
   e. Posterior pituitary

21. The source of estrogen and progesterone during the first two months of pregnancy is the:
   a. Ovary
   b. Placenta
   c. Corpus luteum ***
   d. Anterior pituitary
   e. Posterior pituitary

22. Which one of the following statements about prolactin is correct?
   a. Prolactin initiates ovulation
   b. Prolactin causes milk ejection during suckling
   c. Prolactin inhibits the growth of breast tissue
   d. Prolactin secretion is tonically inhibited by the hypothalamus ***
   e. Prolactin secretion is increased by dopamine

23. Iodides are stored in the thyroid follicles mainly in the form of
   a. Thyroxine
   b. Thyroglobulin ***
   c. Monoiodotyrosine
   d. Diiodotyrosine
   e. 3,5,3′-triiodothyronine

24. PGE2 leads to?
   a. Vasodilation ***
   b. Vasoconstrictor
   c. Smooth muscle contraction
   d. B and C
25. A 27-year-old Caucasian female presents complaining of recent weight loss and weakness. She reports that she feels dizzy and lightheaded every morning when she gets out of bed, and often at work whenever she must rise from her desk. Physical exam reveals several areas of her skin including her elbows and knees are more pigmented than other areas. Which of the following would be consistent with the patient's disease?
   a. Hyperglycemia
   b. Hyperkalemia***
   c. Hypernatremia
   d. Central obesity

26. Which of the following is not a mechanism of the Innate immunity?
   a. Microglia in the CNS phagocyte a pathogen
   b. A leukocyte releases a chemokine in response to a pathogen
   c. The hypothalamus responds to PGE2 to cause a fever
   d. Complement system activates to lyse a *Serratia s.*
   e. Mature Cytotoxic T cell specializes to destroy *Serratia s.****

27. Which of the following is NOT a cell of the adaptive immunity?
   a. B cell
   b. T cell
   c. NK cell ***
   d. A and B
   e. None of the above

28. What is NOT true regarding Antibodies?
   a. They tag a pathogen and degrade it***
   b. They have a heavy chain and light chain
   c. Antigen binding site
   d. A protein
   e. IgG is the most common antibody found in the blood

29. What initiates the complement system?
   a. 2 IgG *** OR 1 IgM
   b. 2 IgM
   c. 1 IgG
   d. 1 IgA
   e. 2 IgA
30. Which of these is NOT an example of an autoimmune response?
   a. Myasthenia Gravis
   b. Type I Diabetes
   c. Type II Diabetes ***
   d. Joint pain
   e. Abdominal Pain

31. 33 year old male presents with acute appetite, nauseas, and sleep apnea. Among other things, him and his wife tell you they are trying to have kids but no luck. When his wife steps out of the room he confides to you he has decreased sexual drive, he feels depressed, and tired after working out. A head scan reveals a very tiny cancerous mass near his pituitary gland. Looking at his symptoms and the results of the MRI, what else could be found?
   a. Increased Leydig Cell secretions
   b. Increased GnRH levels ***
   c. Decreased FSH levels
   d. Decreased Inhibin

32. The thyroid gland is derived from which of the following?
   a. Ectoderm
   b. Mesoderm
   c. Endoderm ***
   d. Epidermis

33. A 4-day-old healthy male infant is born with normal internal and external male reproductive organs. Karyotype analysis reveals a 46XY genotype. Production of what substance by which cell type is responsible for the development of the normal male seminal vesicles, epididymides, ejaculatory ducts, and ductus deferens?
   a. Testis-determining factor; Sertoli cells
   b. Testis-determining factor; Leydig cells
   c. Testosterone; Sertoli cells
   d. Testosterone; Leydig cells ***
   e. Mullerian inhibitory factor; Sertoli cells

34. A 22-year-old female presents to the clinic at the beginning of her third trimester for a fetal ultrasound. She tells you everything is fine, except she occasionally is woken up at night. The sonographer is unable to visualize any of the structures arising from the mesonephric duct. This infant is at risk for malformation of which of the following?
   a. Fallopian tubes
   b. Uterus
   c. Upper 1/3 of vagina
   d. All of the above
   e. A and B
   f. No malformation would be expected ***
35. A 32-year-old female presents to her gynecologist noting that she missed her menstrual period two weeks ago. She denies pelvic pain, but notes that she has a very regular cycle and typically does not miss periods. She is concerned and states she would like to have an abortion if she is pregnant. A pelvic ultrasound is performed, which shows no sign of a gestational sac in the uterus, and her human chorionic gonadotropin (hCG) levels have been randomly checked several times this month. The levels have been moderate enough to be indicative of pregnancy but not high enough to be in the normal range. Other hormones involved in pregnancy have been checked and appear to be in normal range. Which of the following is true?
   a. She is not pregnant
   b. Teratoma (tumor of egg cell) would be present
   c. Ovary is producing progesterone ***
   d. Spontaneous abortion has occurred

36. Which of the following hormone(s), in a female, are high during ovulation?
   a. LH
   b. Estrogen
   c. Progesterone
   d. A and B ***
   e. None of the above

37. When a Corpus Albicans has been synthesized, which hormone(s) are rising in circulation?
   a. Progesterone
   b. GnRH
   c. Inhibin
   d. Estrogen
   e. FSH
   f. B and E ***

38. A 5-year-old boy presents for a regularly scheduled check-up. The child is wheelchair bound due to lower extremity paralysis, suffers from urinary incontinence, partial blindness and severe deafness. At birth, it was noted that the child had lower limbs of disproportionately small size in relation to the rest of his body. Radiograph imaging at birth also revealed several abnormalities in the spine, pelvis, lower limbs and an underdeveloped cochlear system. The paralysis and some other symptoms were caused by the tough labor, however, for certain symptoms a complete history and physical performed on the child's birth mother during her pregnancy would likely have revealed which of the following causes of the boy’s other symptoms?
   a. Alcohol use
   b. Hormone imbalance
   c. Unprescribed Drug use (amoxicillin) ***
   d. Cigarette use
   e. None of the above
39. Which is true regarding Eukaryotes?
   a. 23 autosomes and/or an X or Y chromosome in a haploid cell
   b. Have 46 pairs of chromosomes in humans
   c. All males have 2 sex chromosomes
   d. The SRY gene is located on the extra arm on the X chromosome, which is
      missing on the Y chromosome in humans
   e. The sperm in humans ultimately determines the sex of the child ***

40. Which is true regarding spermatogenesis and oogenesis?
   a. Spermatogonia go through one round of Meiosis, then remain in G₀ until
      puberty to go through round two of meiosis they go through mitosis
   b. Spermiogenesis refers to the entire sequence of events regarding the
      development of sperm spermatids→sperm
   c. Primary oocyte go through many rounds of mitosis during intrauterine life and
      this determines the amount of eggs a female may have oogonia
   d. 1 secondary spermatocytes ultimately yield 2 sperm cells ***
   e. 2 primary oocytes ultimately yield 4 egg cells 8 cells