Brown Medical School
The Integrated Final Exam

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Questions 1-66 (Case Vignettes)--Choose the one best answer

Case Vignette 1

A 27 year old presents to you with concerns about fertility and her menstrual cycle. Specifically, having searched the Internet, she is worried that her menstrual cycle is short because of an abnormal luteal phase.

1. _____What is the average length of the luteal phase?
   a. 7 days
   b. 14 days
   c. 21 days
   d. 28 days

2. _____Which of the following statements is true about hormone levels right before menstruation?
   a. LH is at its highest value
   b. Estradiol is at its highest value
   c. LH is at its lowest value
   d. FSH is at its highest value

3. _____During your evaluation, you find that the patient has a low serum progesterone which makes you concerned about her luteal phase and endometrial lining.

   The best treatment listed below to improve her fertility is:
   a. GnRH given in a non-pulsatile manner
   b. Donor sperm to help fertilization
   c. An IUD to decrease her risk of ectopic pregnancy
   d. Progesterone supplementation

Case Vignette 2

A 18-year-old female college freshman with a history of latex allergy has recently initiated sexual activity and reports severe vaginal itching and discomfort after having protected sex.

4. _____Which of the following condoms has she used?
   a. Durex, Avanti® male condom
   b. Trojan Supra® male condom
   c. Life Styles® male condom
   d. Reality® female condom
Two months later she reports that the condom she was using during sex 3 days ago broke. Her LMP was 3 weeks ago. She is definitely not interested in a pregnancy at this time.

5. _____The right approach will be:
   a. Advise her that it is too late for emergency contraception
   b. No intervention is needed since the risk of pregnancy at this stage is very low
   c. Perform a pregnancy test and if negative prescribe emergency contraception such as Plan B
   d. Perform a pregnancy test and quick start OCP

6. _____Four months later she presents to your office during her menstrual period with a request to initiate transdermal contraception. All of the following are true regarding the contraceptive patch Ortho-Evra except:
   a. It contains norelgestromin, the primary metabolite of norgestimate
   b. It may be less effective in women > 198 pounds
   c. Blood hormonal levels of ethinyl estradiol and norelgestromin fluctuate during the day similar to blood hormonal level fluctuations with OCP use
   d. Contraindications are similar to contraindications to OCP use plus skin disorders

She used the patch for a month but was compelled to discontinue its use because of application site reactions. She is now interested in the new pill Seasonale®.

7. _____All of the following are true regarding the 91-day extended cycle regimen except:
   a. Estrogen/progestin components are similar to that found in the OCP Nordette-28
   b. The extended cycle regimen is helpful in the treatment of endometriosis
   c. Breakthrough bleeding is common during the first few months of use
   d. Women with a history of superficial thrombophlebitis should not be prescribed this regimen
Case Vignette 3

A 28 year old male presents for an infertility evaluation. He and his 27 year old wife have been trying to conceive for 2 years without success. His physical exam is normal. His semen analysis demonstrates a normal volume of semen but the samples is azoospermic (no sperm in the semen). As part of the work-up you perform a testicular biopsy which demonstrates a pattern of germ cell maturation arrest (most cell types are present except there are no germ cells more mature than secondary spermatocytes which means that the maturation process is “arrested” at the secondary spermatocyte stage).

8. _____ Which type of cells are missing from the seminiferous tubules?
   a. Cells that reside in the basal compartment of the seminiferous tubules
   b. Cells that are produced by mitosis
   c. Cells that contain 1N DNA and are haploid
   d. Cells that divide and produce spermatocytes
   e. Cells that contain 2N DNA and are diploid

9. _____ You discover that the patient has hypogonadotropic hypogonadism. You elect to treat the patient (who is a biology major at Brown). He is inquisitive and you explain to him that normal Hypothalamic-Pituitary-Gonadal function requires:
   a. Constant secretion of GnRH
   b. Proper Leydig cell function but does not require Sertoli cell function.
   c. Pulsatile secretion of GnRH
   d. Negative feedback only for FSH secretion
   e. Only steroid hormones.

10. _____ After 6 months of treatment the patient has sperm in the semen. To develop normal fertilization capacity, the spermatozoa must do all of the following except:
    a. Be able to pass through the zona pellucida
    b. Undergo capacitation
    c. Undergo the acrosome reaction
    d. Pass through the epididymis
    e. Come in contact with ova within 2 hours of ejaculation

11. _____ You know that this patient is not missing the seminal vesicles because if he had absence of the seminal vesicles, you would be expecting:
    a. A high volume ejaculate
    b. A low volume, acidic ejaculate
    c. No effect on the ejaculate volume
    d. A normal volume, normal pH ejaculate
    e. A low volume ejaculate with a high pH
Case Vignette 4

A second couple presents for infertility. The 49 y/o male and his 22 y/o wife have been trying to have children for 4 years.

12. ______ If his evaluation demonstrated a defect in the microtubule structure of the sperm axoneme, you would expect:
   a. Azoospermia (no sperm in the semen)
   b. Sperm with no motility
   c. Sperm with absent acrosomes
   d. Normal sperm counts and motility
   e. Absent vas deferens on physical exam

13. ______ The patient has a history of testicular trauma, so you are concerned that the blood: testis barrier may have been disrupted. Where will you find this barrier?
   a. At the junction of the epididymis and the testis
   b. Between adjacent Leydig cells
   c. Outside of the seminiferous tubules
   d. At the level of the smooth muscle cells of the arterioles in the testicle
   e. Between adjacent Sertoli cells

14. ______ The wife is thinking of going to medical school and inquires about the genetics of spermatogenesis. Specifically, she wants to know when crossovers occur between maternal and paternal chromosomes. You explain to her that crossovers occur:
   a. In spermatogonia during mitosis
   b. In primary spermatocytes during the first meiotic division
   c. In secondary spermatocytes during the second meiotic division
   d. Only during spermiogenesis (maturation of spermatids)
   e. During capacitation

15. ______ Ultimately you decide to perform in vitro fertilization. For the sperm to be able to fertilize the ova:
   a. Capacitation followed by the acrosome reaction must usually take place
   b. Sperm must immediately be used before capacitation takes place
   c. The second meiotic division of the spermatocytes need to take place in the sperm found in the semen after ejaculation
   d. They must stay within the seminiferous tubules
   e. Nothing needs to take place, ejaculated sperm can immediately fertilize ova
16. The wife is interested to know on which days of her cycle is the endometrium most suitably prepared for the implantation of a fertilized ovum. You answer:
   a. 16 - 17
   b. 23 - 24
   c. 25 - 26
   d. 14 - 15
   e. 21 - 22

Case Vignette 5

You have finished your residency and now set up shop as a male sexual dysfunction expert. A 25 year old male has seen your billboard advertising your services and comes in for an appointment. The patient’s history is significant for having pelvic surgery for a tumor as a child. He was told that his parasympathetic nerves were permanently injured during the surgery but the sympathetic nerves were left intact.

17. You would expect his sexual function to be affected in the following manner:
   a. Normal erections but no ejaculation
   b. No erections or ejaculation
   c. No erections but normal ejaculation
   d. Normal erections and normal ejaculation
   e. Normal sexual function but no spermatogenesis

18. The patient is engaged and would like to have a memorable wedding night. He wants to know about normal male sexual function. Which of the following is a correct statement?
   a. Normal erections require continued free outflow of venous blood from the corpora cavernosa of the penis
   b. Neurotransmitters have no role in the attainment of normal erections
   c. The attainment of an erection requires constriction of the penile arteries and sinusoids
   d. Cyclic GMP is normally required during the erectile process
   e. Nitric Oxide is required for detumescence

19. After a thorough evaluation, you decide to treat the patient. To attain a physiologic erection your treatment must:
   a. Decrease arterial flow into, and decrease venous flow out of the corpora cavernosa
   b. Increase blood flow into, and decrease blood flow out of the corpora cavernosa
   c. Cause contraction of the vas deferens and seminal vesicles
   d. Cause contraction of skeletal muscle around the corpora cavernosa
   e. Close the bladder neck
20. The patient decides that he would like oral pharmacotherapy (he wants to take a pill) to improve his erections. Given that he has no parasympathetic innervation of his corpora cavernosa, you would expect sildenafil (Viagra) to:
   a. Work better than usual
   b. Only work if the sympathetic nerves are intact
   c. Work poorly
   d. Induce ejaculation
   e. Help contract the external sphincter

Case Vignette 6

DR is a 20 year old, 5'4" female. She presents to you for her first prenatal care at 14 weeks gestation weighing 110 pounds (BMI = 18.9). She has not gained any weight yet during her pregnancy.

21. About how much weight should DR gain per week in the coming months?
   a. 0.2 kg
   b. 0.45 kg
   c. About 1 kg
   d. About 2 kg

DR describes to you a diet that does not include very many servings of vegetables aside from fried potatoes.

22. What nutrient problem would you be most concerned about with this dietary pattern for DR?
   a. Folate deficiency, needed for formation of neural tubes
   b. B12 deficiency, needed for avoiding anemia
   c. Folate deficiency, needed for avoiding anemia
   d. Energy deficiency, need for appropriate weight gain

23. Energy intake is of very high concern for DR because energy intake
   a. Is tightly associated with gestational duration
   b. Is weakly associated with congenital anomalies
   c. Is associated with risk of low birth weight
   d. Is associated with risk of maternal mortality

24. Should DR decide to breastfeed her baby, how much protein will she need during lactation compared with during pregnancy?
   a. The same as during pregnancy
   b. Less that during pregnancy
   c. More than during pregnancy
   d. No requirement has been established for during lactation
Case Vignette 7

Lauren is a 17 year old high school senior who is coming to see you, her regular pediatrician, for her pre-college physical. She is a “good kid” with whom you have had an excellent relationship; she has been an Honors student all through high school, is on the tennis team and student council, and is well-liked by her peers. She has always denied use of drugs, alcohol, and cigarettes. Her last menstrual period was 6 months ago but she denies ever having sex. On the phone, Lauren’s mother has confided to you that she is a little worried about her daughter; she seems moody, she has lost 30 pounds (from 130 pounds to 100 pounds) during the past 4 months, her grades have slipped a bit, and she doesn’t sleep well. You are aware that she was involved in a car accident 3 years ago in which she sustained minor neck injuries, but she has been otherwise healthy. She has no psychiatric history; there is a family history of depression and anxiety on the maternal side. Past medical history is significant for an adenotonsillectomy at age 4 years, and iron deficiency anemia in the past.

25. How much sleep does the average high school student need?
   a. 10 hours
   b. 8 hours
   c. 9 hours
   d. 7 hours
   e. 6 hours

26. Which of the following would **not** be included in appropriate sleep counseling for this patient?
   a. Keep a regular sleep/wake schedule
   b. Avoid vigorous exercise 3 hours before bedtime
   c. Avoid light exposure in the morning
   d. If unable to fall asleep within 30 minutes, get out of bed and read until drowsy
   e. Drink a cup of warm milk at bed time

27. The most likely reason for amenorrhea in this patient is:
   a. Drug abuse
   b. Iron deficiency anemia
   c. State post neck injury
   d. Weight loss
   e. Obstructive sleep apnea

28. The most likely hormonal finding in this patient is:
   a. High levels of LH and FSH
   b. High testosterone levels
   c. Low levels of LH and FSH
   d. Low level of cortisol
e. High level of estrogen

Case Vignette 8

A healthy 25 year-old primipara at 38 weeks’ gestation calls you while you are on call reporting that she is in labor; she denies any complications of this pregnancy. She tells you that her due date was established by last menstrual period, and confirmed by an 18-week ultrasound.

29. _____ Which of the following is true?
   a. She is soon to deliver her first baby
   b. She has already had one delivery
   c. She has already had more than one delivery
   d. Not enough information has been given to determine how many deliveries she has had

30. _____ Conception occurred:
   a. 36 weeks ago
   b. 38 weeks ago
   c. 40 weeks ago
   d. Date of conception cannot be determined

31. _____ Which of the following is not true of the physiology of the uterus during this pregnancy?
   a. Oxytocin receptor concentration has been suppressed by progesterone, to prevent premature labor
   b. Gap junctions between myometrial cells increase greatly in number to facilitate organized contractions
   c. Myometrial cells have very little innervation; contractions arise from intrinsic activity and humeral and hormonal factors
   d. Prostaglandins play an important role in relaxing the cervix

After speaking with the patient on the telephone, you determine that she should be evaluated in Labor and Delivery. Upon arrival, she is assessed by a nurse and placed on a fetal monitor. She is confirmed to be in active labor. Electronic Fetal Heart Rate (FHR) monitoring demonstrates subtle but persistent decelerations that occur at the end of contractions, and return to baseline slowly. Variability of the fetal heart rate between contractions is poor. The chief resident confirms the presence of late decelerations.

32. _____ These late decelerations:
   a. Indicate a vagal response to fetal head compression, and are normal and not worrisome
   b. Indicate umbilical vein compression during the contraction
   c. Indicate umbilical artery compression during the contraction
   d. Suggest acidemia of the fetus, and should prompt plans for expedited delivery
Case Vignette 9

A healthy 22-year old woman at 30 weeks’ gestation in her first pregnancy arrives at labor and delivery complaining of contractions. After placement on the monitor, contractions are documented every 3-4 minutes, and the patient, sweating and uncomfortable, reports that they are intense and painful.

33. She is:
   a. In the latent phase of labor
   b. In the active phase of labor
   c. Not yet in labor
   d. This information cannot be determined from the data given

34. Of the following, which is the most likely underlying cause of these contractions:
   a. An intrauterine infection has decreased the production of prostaglandins in the amnion
   b. A maternal pituitary disorder has decreased levels of oxytocin
   c. An intrauterine infection has decreased prostaglandin degradation in the chorion
   d. Thinking they were prenatal vitamins, the patient accidentally consumed nifedipine (a calcium-channel blocker)

35. Which of the following medications would be least likely to stop these contractions?
   a. Atenolol (a beta-blocker)
   b. Nifedipine (a calcium-channel blocker)
   c. Magnesium sulfate
   d. Ritodrine (a beta-agonist)

Your interventions are successful, and the patient achieves 40 weeks’ gestation. She subsequently calls and says that her waters have broken.

36. If this is true, delivery can be expected in the next 24-48 hours because:
   a. Oxytocin is released by the fetal pituitary as a response to rupture of the membranes
   b. Progesterone, concentrated in the amniotic fluid, is lost with the waters, and no longer suppresses uterine activity
   c. Rupture of membranes without rapid labor is an abnormal situation and requires cesarean delivery
   d. Prostaglandins are synthesized in the membranes and are released into the maternal system upon rupture
Case Vignette 10

A 35-year-old 16 week pregnant woman presents for prenatal screening:
The quadruple screen shows:

AFP--0.9 MoM
Urinary E3--0.6 MoM
HCG--4.0 MoM
Inhibin A--Pending

The pregnancy was terminated 2 weeks later. The amniocyte karyotype was abnormal.

37. The most likely diagnosis is:
   a. Down syndrome
   b. Hydrocephalus
   c. Trisomy 18
d. Turner syndrome  
e. Open spina bifida

38. _____ What is the main pathophysiology of this disorder?  
   a. Lack of folic acid  
   b. A chromosome loss that leads to abnormal lymphatic drainage  
   c. Excessive vitamin A ingestion  
   d. Meiotic non-disjunction resulting in three representatives of a particular chromosome instead of the usual two

Case Vignette II

You have been chosen by the Weber family to take care of their son Ron. During your first encounter with the family Ron cries a lot. When he calms down you notice that he lifts head & shoulders off bed in prone. He follows a moving object past midline.

39. _____ How old is Ron most likely to be?  
   a. 1 week old  
   b. 1 month old  
   c. 2 months old  
   d. 3 months old  
   e. 4 months old

40. _____ During your second encounter Ron laughs out loud. He rolls from prone to supine and then reaches and grasps a tongue depressor that you hold. How old is Ron most likely to be?  
   a. 2 months old  
   b. 3 months old  
   c. 4 months old  
   d. 5 months old  
   e. 6 months old

41. _____ During your third encounter Ron sits briefly leaning forward on hands (back rounded). He is able to transfer your tongue depressor from the right to left hand. How old is Ron most likely to be?  
   a. 3 months old  
   b. 4 months old  
   c. 5 months old  
   d. 6 months old  
   e. 7 months old

42. _____ The family was out of town for a few months and is happy to return to your service. Ron takes a few steps alone and drinks from a cup held by his mother. How old is Ron most likely to be?  
   a. 6 months old  
   b. 9 months old  
   c. 12 months old
d. 15 months old  
e. 18 months old

**Case Vignette 12**

A 22 year old primigravida presents to you in the first trimester of her pregnancy with a chief complaint of vaginal bleeding. She states that she is also having some minimal cramping. On physical examination the cervix is closed and there is minimal blood in the vaginal vault. You bring the patient to your consultation room for counseling and to give her some information about her chances for a good outcome in this pregnancy.

43. _____Approximately what percentage of women with an intrauterine pregnancy that know that they are pregnant (i.e. clinically recognized pregnancy) miscarry?  
   a. 90%  
   b. 60%  
   c. 20%  
   d. 5%

44. _____Which of the following would be the most likely to increase this patient’s risk of a miscarriage in the first trimester?  
   a. Cervical incompetence  
   b. History of prior rubella infection  
   c. Being of young age  
   d. Abnormally shaped uterus

Because you are concerned about an ectopic pregnancy you obtain some additional history.

45. _____Which of the following **is not** a risk factor for ectopic pregnancy?  
   a. History of an intrauterine device  
   b. History of prior miscarriage  
   c. History of prior tubal surgery  
   d. History of infertility

Upon obtaining an ultrasound, you make the diagnosis of an ectopic pregnancy.

46. _____Which of the following statements concerning an ectopic pregnancy is true?  
   a. The overall incidence of ectopic pregnancies has increased over time  
   b. The risk of dying from an ectopic pregnancy has not changed over time  
   c. This patient, given her diagnosis, should be operated on immediately  
   d. This patient, even if Rh negative, does not need Rhogam since she has an ectopic (vs. intrauterine) pregnancy
Case Vignette 13

A nineteen year old college student presents to you with an undesired pregnancy conceived while on oral contraceptives. She is interested in obtaining information concerning terminations of pregnancy.

47. _____ You counsel her that from the perspective of future fertility

   a. A termination of pregnancy, performed properly, should not impact in any way on her fertility
   b. A termination of pregnancy, when performed properly, may increase her risk of breast cancer
   c. A termination of pregnancy, when performed properly, may increase the risk of future miscarriage
   d. The risk of maternal death with a termination of pregnancy, when performed properly, may be as high as one in a thousand

48. _____ Assuming that it is legal (i.e. that the state that the patient lives in has laws permitting it), in which trimester is a termination able to be technically done:

   a. First trimester
   b. Second trimester
   c. First & second trimester
   d. Any trimester

49. _____ Based on the patient’s history you counsel her that she is typical of women seeking terminations in all the following criteria except:

   a. She is single
   b. She is under 20 years old
   c. She is highly educated
   d. She is seeking a first (vs. later) trimester termination

50. _____ Based on her history, which of the following statements is true

   a. This termination would be considered elective despite conception while on birth control pills
   b. She can only have a surgical (vs. medical) treatment for this pregnancy
   c. This patient, if Rh negative, does not need Rhogam since she is terminating the pregnancy
   d. If a termination is performed it should only be done in the second trimester
Case Vignette 14

A couple presents with a history of infertility. A chromosomal analysis reflects that the woman has 45XO chromosomes.

During your counseling session, you inform the couple of the following:

51. ______ This chromosomal finding could have typically been caused during?
   a. Mitosis
   b. The first meiotic division
   c. The third meiotic division
   d. Between her birth and puberty

52. ______ If the couple wish to become pregnant their best option will be?
   a. Surgery to repair the ovary
   b. Donor eggs
   c. Fertility drugs for the patient taken in very high doses
   d. Alkalating agents to treat the ovary

53. ______ When does a woman have the most number of gametes (eggs) during her life?
   a. At five months gestation in her mother’s womb
   b. At birth
   c. At puberty
   d. During her first pregnancy

54. ______ To complete the fertility evaluation you evaluate the husband. He is 50 years old. You counsel the couple that in the course of a normal reproductive life:
   a. His fertility has markedly decreased based on his age
   b. Any sperm count obtained reflects sperm production more than one month ago
   c. To achieve normal fertilization, capacitation is not necessary
   d. The seminal fluid is acidic to offset the vagina’s basic pH

Case Vignette 15

An infertile couple has been determined to have problems with fertilization as the cause of their inability to conceive. You may counsel them as follows:

55. ______ If there are more than two sets of DNA noted in the embryo this may reflect:
   √ a. A failure of the cortical reaction to prevent more than one sperm penetrating
   b. A failure of the mitotic division to occur
   c. A problem with the acrosomal enzymes
   d. A failure of pronuclear formation
56. During normal fertilization process:
   a. The fallopian tubes facilitate both the transport of sperm and the embryo
   b. The egg reaches the uterus within 48 hours of fertilization
   c. The second polar body is extruded with implantation of the embryo
   d. The sperm's enzymes are critical for implantation

57. The cervix, via its mucus, performs all the following functions except:
   a. Facilitates sperm entry into the uterus during the peri-ovulatory period
   b. Prevents sperm entry into the cervix during other parts of the cycle
   c. Facilitates survival of the sperm during the peri-ovulatory period
   d. Facilitates fertilization by helping to digest the cumulus cells surrounding the egg

58. Which of the following statements concerning Syngamy is true:
   a. It marks the end of fertilization
   b. It represents the expulsion of the first polar body
   c. It marks the end of mitosis
   d. It is the key sign of a mature egg

Case Vignette 16

A 22 year old primiparous patient presents to your office at 22 week gestation with urinary frequency and right flank pain. She reports good fetal movement. She denies vaginal bleeding. She has had some recent constipation, a decrease in appetite, but no vomiting.

59. The differential diagnosis includes all of the following except:
   a. Urinary frequency due to increased glomerular filtration rate in pregnancy and right flank pain due to physiologic ureteral stasis.
   b. Pyelonephritis
   c. Abruptio Placenta
   d. Kidney Stones

60. Which of the following statements regarding the genitourinary tract in pregnancy is true?
   a. Elevated placental progesterone in pregnancy slows ureteral peristalsis
   b. Elevated placental progesterone in pregnancy increases ureteral peristalsis
   c. The left ureter is extrinsically compressed by the sigmoid colon
   d. The pregnant uterus is levo-rotated, causing extrinsic compression of the left ureter
61. _____ You order a urinalysis and the urine dipstick reveals 1+ glucosuria. The most likely explanation is:
   a. The patient has Type II Diabetes
   b. The patient has Gestational Diabetes
   c. Glomerular filtration rate increases in pregnancy resulting in increased glucose being presented to the kidney
   d. The patient has pyelonephritis

62. _____ You order a set of electrolytes, and discover that the patient’s sodium concentration is 135 meq/l. Three months prior to conception, it had been 140 meq/l. The best explanation for this is:
   a. Sodium is retained in pregnancy, but even more water is retained, resulting in a dilutional effect on serum sodium concentration
   b. There is a net loss of sodium in pregnancy and a net retention of water, leading to a decrease in serum sodium concentration
   c. Aldosterone levels decline in pregnancy, causing decreased sodium reabsorption
   d. The patient’s increased urinary frequency is causing her to lose sodium in her urine

Case Vignette 17

A 30 year old multiparous patient presents at term for induction of labor because of gestational diabetes. When she arrives she is not yet in active labor.

63. _____ When will her cardiac output be maximal?
   a. It has already been maximal since the early 3rd trimester and will show no further increase during labor
   b. Cardiac output will be maximal once she is in active labor
   c. Cardiac output will reach a maximum with contractions during the second stage of labor
   d. Cardiac output will reach a maximum after delivery

64. _____ Once delivered, infants of mothers with gestational diabetes may exhibit all of the following except:
   a. Macrosomia
   b. Hypoglycemia
   c. Hyperglycemia
   d. Hypothermia
65. While in labor, the mother decides to lie flat on her back. You notice that her blood pressure drops from 100/60 to 70/40. At the same time, the baby’s heart rate drops from 125 beats per minute to 60 beats per minute. What is the most likely explanation?
   a. Extrinsic compression of the inferior vena cava by the pregnant uterus in the supine position decreases venous return to the heart, resulting in decreased cardiac output and decreased uterine blood flow
   b. Fetal congenital heart block
   c. Pulmonary embolus
   d. Maternal myocardial ischemia

66. After a 16-hour labor, the mother ultimately requires a Cesarean Section because of failure to progress in labor. The average blood loss at Cesarean Section is:
   a. 500 cc
   b. 750 cc
   c. 1000 cc
   d. 1500 cc

Questions 67-82 choose the one best answer

67. A 38 year old woman is seen by you and diagnosed with depression. She states she has no interest in her usual activities, including sex. You start her on Fluoxetine (Prozac) for treatment. She returns 1 month later and states she is feeling much better in terms of her depression, but still has no interest in having sex with her husband of 15 years. What might you recommend to her?
   a. See a marriage counselor
   b. Increase her dose of Fluoxetine
   c. Tell her to stop the Fluoxetine completely since she is cured.
   d. Switch her to Bupropion (Wellbutrin)

68. A 23 year old G1P0 comes in 6 weeks from her LMP. She had a positive pregnancy test at home 3 days ago but now has vaginal bleeding. You tell her:
   a. That you will draw a quantitative HCG level and look for a 66% increase in 2 days
   b. That the home pregnancy test was likely wrong since she is bleeding
   c. That she is probably having a miscarriage and the serum pregnancy test should be negative
   d. That a serum human placental lactogen level would help tell if the pregnancy is viable
69. A perimenopausal woman is having unscheduled vaginal bleeding. You suspect that she might have an anovulatory cycle which is characterized by:
   a. Persistent high level of progesterone in blood
   b. Low level of estrogen in blood
   c. Persistent high level of estrogen in blood
   d. High level of estrogen and progesterone in blood
   e. Low level of estrogen and progesterone in blood

70. The endometrium in dysfunctional uterine bleeding shows features of:
   a. Secretory glands with evidence of hypersecretion
   b. Proliferative glands with stromal breakdown
   c. Early secretory phase glands with regular subnuclear vacuolation
   d. Secretory glands with stromal breakdown
   e. None of the above

71. An endometrial biopsy is performed in a patient as a part of investigation of infertility. The surgical pathology report states that most of the endometrial glands show regular subnuclear vacuolation. You would conclude from the report that:
   a. The patient is about to ovulate
   b. There is no sign of ovulation yet
   c. This is evidence that ovulation has occurred
   d. The patient would need ovulation stimulating treatment

72. Steady state drug concentrations in the blood of pregnant women are affected by all of the following except:
   a. Body water composition
   b. Glomerular filtration rate
   c. Circulating protein concentration
   d. Oral and transepidermal absorption

73. A factor not important in determining the teratogenic potential of a drug is:
   a. Dose
   b. Route of administration
   c. Genetic predisposition of the fetus
   d. Timing of drug exposure

74. The following drugs have been associated with known embryopathy except for:
   a. Warfarin
   b. Retinoic acid
   c. Valproic acid
   d. Cocaine
75. _____ The percent of offspring with congenital malformations in the absence of drug exposure is:
   a. 5-10%
   b. 1-2%
   c. 2-4%
   d. > 10%

76. _____ You are seeing a 20 month old in your office. The patient is new to your practice. She doesn't consume milk, yogurt or cheese. What might be missing from her diet?
   a. Protein, calcium, and Vitamin C
   b. Calcium, B vitamins, and iron
   c. Vitamins A and D, calories, protein, calcium, riboflavin
   d. Calories, protein, calcium and iron

77. _____ A healthy 24 year old woman, never pregnant and not trying to conceive, complains of increasingly painful periods. She has tried NSAIDs to no avail. Ultrasound imaging showed no evidence of pelvic pathology. Her past history is significant for smoking 10 cigarettes per day. Which of the following choices would you recommend next:
   a. Laparoscopic surgery
   b. GnRH agonist/Lupron
   c. Hysterectomy
   d. Combination OCPs
   e. Aromatase Inhibitors

78. _____ A 22 year old woman, diagnosed with mild endometriosis and treated by laparoscopic resection of implants 2 years ago, complains of symptoms similar to what she was feeling (chronic pelvic discomfort) before her surgery. To avoid repeat surgery, you give her continuous OCPs as she is not planning on conceiving but it does not work. She also admits forgetting to take her pills occasionally. You switch her to GnRH agonist treatment. But after 2 months, although her pain was better, she can not tolerate the hypoestrogenic side effects of the drug. The best treatment for her would be:
   a. Ask her to try to deal with her side effects and continue GnRH analog
   b. Repeat laparoscopic surgery
   c. Intramuscular monthly progestin injections
   d. Continue with GnRH agonist & "add back" sex steroid therapy
   e. Danazol
79. A single 45 year old woman diagnosed with mild endometriosis during her laparoscopic tubal ligation surgery 5 years ago, complains of worsening dyspareunia (pain during intercourse) and debilitating chronic lower abdominal/pelvic pain. CT imaging of the abdomen and pelvis reveals no pathology except for a mildly enlarged uterus with no discrete masses. She has osteopenia (borderline low bone density) and has smoked 1 pack of cigarettes per day for the last 20 years. She is on disability for an anxiety/psychotic disorder. Although she is quite independent and has family support, she feels unable to care for her three children because of her pain. NSAIDs have not worked. Which of the following choices would be most reasonable to consider next:
   a. Oral contraceptive pills
   b. High does progestins
   c. Hysterectomy
   d. GnRH agonist
   e. Danazol

80. Inadequate or interrupted sleep in the postpartum period has been associated with all of the following except:
   a. Difficulty in breast feeding
   b. Depression
   c. First birth
   d. Having a premature infant

81. An infant of a well-controlled diabetic mother has a normal exam and good Apgar scores. Birth weight is normal for gestational age. Nursery screening for hypoglycemia shows a cord blood glucose of 86 mg/dl after a maternal glucose of 104 mg/ dl just before delivery. Neonatal glucose is 58mg/dl at one hour post delivery, and 52 mg/dl at age 3 hrs. How should the pediatrician respond to this information?
   a. Start intravenous glucose immediately
   b. Don't feed the baby for 12 hours
   c. Call an endocrinologist to evaluate the baby for hypoglycemia
   d. Feed the baby at age 4 hours, as scheduled

82. A 32 week newborn was delivered by C-section for maternal complications (hypertension with decreasing renal function). At age 2 hours, the baby has intercostal retractions, grunting, cyanosis in room air, occasional apneic spells, and an arterial pCO2 of 62 mmHg. Our plan should include:
   a. Administer oxygen
   b. Begin assisted ventilation
   c. Give intratracheal surfactant
   d. All of the above
Questions 83-85

You are a first year intern in Pediatric Medicine. The attending physician asks you to classify the malnutrition that you have identified in several children. The two broad categories are *stunting* and *wasting*. Some children are both stunted and wasted. Please classify the following children as either:

a) stunted
b) wasted
c) stunted and wasted

83. _____ A 7 year old female with new diagnosis of celiac disease. Growth parameters: Height: at the 50th% for an average 4 year old. Weight: at the 50th% for an average 3 year old.

84. _____ An 8 month old male with gastroenteritis persisting for over 2 weeks. Growth parameters: height: 50th%, weight: 10th% head circumference: 50th%.

85. _____ A 15 year old female with cystic fibrosis. Both parents and siblings are 5 feet 7 inches or taller. Her growth parameters: weight: at 3rd% height: at 3rd%.
A 3 year old boy presented with a mass in the right flank. Urinalysis revealed hematuria. At birth he had macrosomia and an omphalocele. The macrosomia was more pronounced on the left side of his body. A microscopic section of the mass is illustrated.

Answer true (A) or false (B) for each of the following: (1 point each)

86. These tumors occur only in children and are almost always part of a syndrome.
   - False

87. Genetic abnormalities associated with this tumor usually involve chromosome 11.
   - True

88. Microscopically, 3 elements are present; epithelial, stromal, and blastemal.
   - True
89. Regardless of the age at time of recognition, 80% of these children are dead within 5 years.  
False

90. The macrosomia present at birth indicates that the mother had gestational diabetes mellitus.  
False

Questions 91-95 True or False

A 4 year old girl presented with a left abdominal mass. Serum markers for VMA and HVA were elevated. Karyotyping of tumor cells revealed a deletion on the short arm of chromosome 1. A microscopic section of the tumor is illustrated.

Answer true (A) or false (B) for each of the following (1 point each)

91. N-myc amplification is associated with a poor prognosis.

True

92. More mature variations of this tumor will contain Schwannian elements and ganglion cells and will be associated with a better prognosis.

True
93. Metastases to the bone marrow indicate almost certain fatality, especially in an infant under 1 year of age.

94. The rosettes present in this picture make it likely that this tumor originated in the kidney.

95. Tests for serum markers may be of value in the postoperative followup of these patients.

96-100 Match the entity below with A-D (1 point each)

A. Malformation
B. Deformation
C. Disruption
D. Dysplasia

96. Osteogenesis imperfecta

97. Amniotic band syndrome

98. Oligohydramnios sequence

99. Renal agenesis

100. Ventricular septal defect
101-105 Match the chromosomal abnormality below with the feature above (1 point each). Choose the one best answer for each.
A. A common cause of early spontaneous abortions
B. Intrauterine growth retardation (IUGR)
C. Atrioventricularis communis (endocardial cushion defect)
D. Holoprosencephaly and/or cleft palate
E. Infertility, eunuchoid body habitus

101. 47, XX or XY, +18
102. 47, XX or XY, +16
103. 47, XX or XY, +21
104. 47, XXY
105. 47, XX or XY, +13

106-108 True (A) or false (B) (1 point each)

106. At the time of the first missed menstrual period, the pregnancy is at approximately 2 weeks developmental age and 4 weeks gestational age.

107. An infant is born with a myelomeningocele. At 18 weeks of gestation, the mother inadvertently received thalidomide. This is the likely cause of the malformation.

108. A zygote is an ovum which has been extruded from the ovary but not yet penetrated by a sperm.

Short Answers 109-111
A 35 year old obese woman had mild hirsutism, menstrual irregularity and infertility. Her enlarged ovaries had the appearance of the ovary depicted below.
109. The diagnosis is **Polycystic Ovaries** (3 points)

An infant is delivered at 26 weeks of gestation. The mother was febrile. The placenta is shown below.

110. The diagnosis regarding the placenta is **Chorioamnionitis** (1.5 points)

111. Any involved pathogens probably reached the placenta via the **umbilical cord**. (1.5 points) **Chromatophore**
An expectant mother presented at 17 weeks gestation with vaginal bleeding. She appeared anxious and had tachycardia with excess sweating. Her serum □-hCG level was more than 1 million IU/ml. She underwent a D&C. The products evacuated from the uterus appeared as viewed below under the dissecting microscope.

112. The diagnosis is complete □-Hydatidiform Mole □ (1.5 points)

113. The patient should have serial followup with what laboratory test? □-HCG levels □ (1.5 points)
The placenta shown below was small for gestational age and had extensive lesions as depicted.

114. Which of the following statements is true: (3 points)

A. The fetus is probably macrosomic ×
B. The fetus is probably small for gestational age but the brain is of normal size ✓
C. The fetus is probably small for gestational age and the brain is proportionately smaller than other organs ×

D. The mother probably has gestational diabetes ✓
E. The placenta shows severe acute chorioamnionitis ×
Questions 115-119 choose the one best answer

115. Under the current DSHEA (Dietary Supplements Health and Education Act) regulations, a manufacturer of a dietary supplement must:

a) Prove that the product is effective for its stated use  
b) Prove that the product has been thoroughly tested for safety  
c) Assure that the product is free from contaminants  
d) All of the above are correct  
e) None of the above are correct

116. Potential interactions between drugs and St. John’s wort may be due to:

a) St. John’s wort’s *induction* of cytochrome P450 drug metabolism  
b) St. John’s wort’s *inhibition* of cytochrome P450 drug metabolism  
c) Additive effects in the CNS with respect to neurotransmitter levels  
d) a & c only  
e) b & c only

117. Which of the following have clinical data supporting their potential benefits in treating osteoarthritis?

a) CoEnzyme Q10  
b) Glucosamine  
c) S-adenosylmethionine (SAMe)  
d) b & c only  
e) all of the above

118. Which of the following dietary supplements can *legally* make a health benefit claim regarding specific disease prevention?

a) Phytosterols  
b) CoEnzyme Q  
c) Glucosamine / Chondroitin  
d) S-adenosylmethionine (SAMe)  
e) Saw Palmetto
119. Which of the following has been associated with hepatotoxicity?

a) St John’s wort
b) Valerian
c) Kava
d) Ginkgo
e) Glucosamine