

HST-071 FINAL EXAMINATION

Please record your answers on the sheet attached.  
Keep the exam itself for later reference to the answer key, which will be posted on the web.  
Late exams will accrue penalties!

- 1) Hyaluronic acid is an important component of the extracellular matrix of the cervix. It facilitates cervical ripening by:
  - A. increasing the water content of the cervix
  - B. decreasing the water content of the cervix
  - C. directly increasing the ratio and concentration of dermatan sulphate
  - D. directly decreasing the ratio of dermatan sulphate
  - E. none of the above
  
- 2) In a patient with bilateral cryptorchidism, what is the best indication for a surgical descent of his testes?
  - A. decreased risk of testicular cancer occurring
  - B. restoration of fertility
  - C. restoration of normal hormone function
  - D. restoration of normal appearance
  - E. increased probability of detecting testicular cancer
  
- 3) Patients suffering from benign prostate hypertrophy (BPH) suffer from having an enlarged prostate. The treatment of choice is Proscar, which is a 5 $\alpha$ -reductase inhibitor. This enzyme is important in
  - A. the conversion of androgens to estrogens
  - B. cholesterol to testosterone
  - C. testosterone to dihydrotestosterone
  - D. dihydrotestosterone to androstenedione
  - E. estrone to estriol
  
- 4) Which of the following statements is the most accurate regarding the normal changes in the cardiovascular system at term?
  - A. total volume increases by 20%, RBC mass increase exceeding plasma volume increase
  - B. total volume increases by 20%, plasma volume increase exceeding RBC mass increase
  - C. total volume increases by 40%, RBC mass increase exceeding plasma volume increase
  - D. total volume increases by 40%, volume increase exceeding RBC mass increase
  - E. no change in the total blood volume
  
- 5) All of the following help regulate the temperature within the testes EXCEPT:
  - A. cremasteric function
  - B. pampiniform plexus
  - C. thick subcutaneous fat
  - D. evaporative heat loss
  - E. thin skin

- 6) Following surgery for prostate cancer, Bob Dole suffered from erectile dysfunction. He then appeared on television advertising for Sildenafil (Viagra). This drug acts by:
- A. enhancing parasympathetic outflow via reduction of central inhibition
  - B. increasing nitric oxide production in the penile vasculature
  - C. increasing arterial pressure in the corpus cavernosus by vasoconstriction
  - D. inhibiting phosphodiesterase-5 and increasing cGMP
  - E. enhancement of accessory muscle tone
- 7) The development of male gametes in the germinal epithelium proceeds through which stages?
- A. spermatocyte, spermatid, spermatogonium, spermatozoa
  - B. spermatogonium, spermatid, spermatocyte, spermatozoa
  - C. spermatozoa, spermatocyte, spermatogonium, spermatid
  - D. spermatogonium, spermatid, spermatozoa, spermatocyte
  - E. spermatogonium, spermatocyte, spermatid, spermatozoa
- 8) A 57 year old man presents with complaints of sexual dysfunction. When asked, he is able to maintain an erection and experience climax. He complains, however, of "nothing coming out" after orgasm. The most likely diagnosis will be established with:
- A. Urine sediment examination after masturbation
  - B. Retrograde urethrogram (RUG)
  - C. Nighttime erectile pressure test, "Rigiscan"
  - D. Penile artery scan
  - E. Pelvic ultrasound
- 9) The respiratory system response to pregnancy includes all of the following EXCEPT:
- A. the diaphragm is elevated but has at least the same excursion
  - B. the vital capacity is decreased
  - C. the thoracic cage is pushed up and widened
  - D. the residual volume decreases
  - E. there is a respiratory alkalosis
- 10) A varicocele is associated with all of the following EXCEPT:
- A. increased rate of infertility
  - B. higher incidence in left testicle compared with right
  - C. increased temperatures in the scrotum
  - D. a mass in the scrotum described as "a bag of worms"
  - E. swollen painful testes
- 11) The epididymis has all of the following functions EXCEPT:
- A. sperm maturation
  - B. fluid resorption
  - C. sperm reservoir
  - D. sperm conduit
  - E. sperm capacitation
- 12) During pregnancy, which of the following is not true about maternal cardiovascular physiology?
- A. heart rate increases
  - B. there are ECG changes that may resemble ischemia
  - C. arterial blood pressure increases compared with normal
  - D. venous pressure increases
  - E. new murmurs are common

- 13) Castration (removal of testes) is associated with which of the following:
- A. high inhibin, low FSH, low LH, low testosterone
  - B. low inhibin, low FSH, low LH, low testosterone
  - C. low inhibin, high FSH, low LH, low testosterone
  - D. high inhibin, high FSH, high LH, low testosterone
  - E. low inhibin, high FSH, high LH, low testosterone
- 14) A 60 year old man presents with erectile dysfunction of new onset. He has a 20 pack year history of smoking, is hypertensive, and has coronary artery disease. He has been able to maintain an erection in the past, but has started seeing a new partner. He notes no change in libido, and reports that he awoke with an erection last night. Which of the following treatments are indicated?
- A. Viagra prescription
  - B. Penile injections
  - C. Penile prosthesis
  - D. Testosterone prescription
  - E. Referral for psychiatric counseling.
- 15) A newborn baby has a normal sized penis and a unilateral undescended testicle. Which of the following diagnoses can and should be eliminated from the differential?
- A. idiopathic cryptorchidism
  - B. gonaditis
  - C. unilateral MIS production
  - D. congenital adrenal hyperplasia
  - E. physician error due to cremasteric reflex
- 16) The development of the female external genitalia is dependent upon which of the following?
- A. the Y chromosome
  - B. Mullerian inhibiting factor
  - C. regression of the Mullerian duct system
  - D. estrogen secretion by the ovary
  - E. the absence of a functioning testis
- 17) The normal order of female pubertal development is:
- A. increase in growth velocity (not peak), thelarche, menarche, adrenarche
  - B. thelarche, adrenarche, increase in growth velocity, menarche
  - C. increase in growth velocity, adrenarche, thelarche, menarche
  - D. increase in growth velocity, thelarche, adrenarche, menarche
  - E. increase in growth velocity, menarche, thelarche, adrenarche
- 18) An 18 year old woman presents with primary amenorrhea. An examination reveals short stature, a webbed neck, lymphedema, Tanner stage 0 breasts, and a lack of pubic and axillary hair growth. The initial work up for this patient should include:
- A. serum progesterone
  - B. ovarian biopsy
  - C. endometrial biopsy
  - D. blood karyotype
  - E. serum cortisol

- 19) A mother brings in her daughter who just turned 15. She states that the girl still has not begun to menstruate, and says "I started having periods at 13!". The daughter is of average height for her age, and has evidence of pubic and axillary hair. Breasts are Tanner state 3. You should
- A. initiate a work-up immediately
  - B. reassure the mother that this could be a variant of normal
  - C. get a karyotype of the mother and father
  - D. begin the daughter on oral contraceptives
  - E. begin the daughter on GnRH agonists
- 20) Progesterone has which of the following effects on the uterus during pregnancy?
- A. increases number of gap junctions in myometrium, but keeps them closed
  - B. decreases number of gap junctions, keeps them closed, and may decrease amount of free  $Ca^{++}$ .
  - C. increases gap junctions, keeps them open, and increases amount of free  $Ca^{++}$ ,
  - D. has no effect on the uterus during pregnancy.
- 21) There have been many concerns of damage to the fetus with a variety of environmental energy sources. Which one of the following energy sources has been shown to be damaging to the growing fetus (either mutagenic or teratogenic) at operating doses/conditions:
- A. microwaves
  - B. ultrasound
  - C. computer terminals
  - D. chronic exposure to 60 Hz fields (ie. power lines, electric blanket, etc)
  - E. none of the above
- 22) All of the following are true of gonadotropin releasing hormone (GnRH) EXCEPT:
- A. responsible for stimulation of synthesis and release of FSH and LH
  - B. is secreted in a pulsatile fashion
  - C. has a half-life of 2-3 minutes
  - D. has a consistent pulse frequency throughout the menstrual cycle
  - E. has inputs from dopamine, norepinephrine, GABA and opioids
- 23) All of the following are recognized as progesterone effects EXCEPT:
- A. cervical mucus becomes scant and thick
  - B. preparation of the endometrium for implantation
  - C. development of breast lobules and alveoli
  - D. rise in basal body temperature
  - E. pigmentation of the areolae
- 24) The follicular phase of the menstrual cycle is characterized by:
- A. endometrial gland proliferation
  - B. decreased ovarian estrogen production
  - C. progesterone dominance
  - D. a fixed length of 8 days
  - E. a reduction in aromatase activity.

- 25) During the menstrual cycle, estrogen functions to build up the endometrium. Which of the following hormones inhibits the action of estrogen on the endometrium (during the second half of the menstrual cycle) ?
- A. human chorionic gonadotropin
  - B. progesterone
  - C. FSH
  - D. prolactin
  - E. none of the above
- 26) During the menstrual cycle, this hormone influences the theca compartment of the ovary and is involved primarily with androgen synthesis:
- A. FSH
  - B. LH
  - C. estrogen
  - D. progesterone
  - E. none of the above
- 27) What is Asherman's syndrome?
- A. a consequence of pelvic inflammatory disease
  - B. uncontrollable uterine contractions
  - C. an ectopic pregnancy that implanted in the peritoneum
  - D. endometriosis that causes infertility
  - E. intrauterine adhesions often secondary to overly vigorous curettage
- 28) The hypothalamus is the pulse generator releasing GNRH in packets at a pre-set frequency. Which of the following is **not** true about GNRH release?
- A. affected by psychologic stress, anorexia, etc.
  - B. inhibited by endogenous opiates (ie beta-endorphins)
  - C. unaffected by dopamine
  - D. under negative feedback by estrogen, androgens, progesterone, and inhibin
- 29) A 25 year old woman and her 30 year old husband are evaluated for infertility. Her history is significant for oligomenorrhea. A physical/pelvic examination, serum prolactin and TSH, hysteroqram, and semen analysis are normal. The treatment offered to this couple should first include:
- A. Bicarbonate douche
  - B. Intrauterine insemination
  - C. Induction of ovulation
  - D. Operative laparoscopy
  - E. In vitro fertilization

- 30) Which of the following is true about the uterine contractility?
- A. aspirin or indomethacin may delay the onset of labor
  - B. estrogen has an inhibitory effect
  - C. the number of gap junctions decreases prior to labor
  - D. the uterus contracts segmentally via nervous connections
  - E. progesterone levels increase prior to labor
- 31) In couples with women under 35, what is roughly the chance of conception in the 1<sup>st</sup> year of marriage if it is attempted?
- A. 15%
  - B. 43%
  - C. 60%
  - D. 80%
  - E. 90%
- 32) An obese woman 24 year old woman presents to your office complaining of menstrual irregularity and infertility. Her cycles have varied from 30-120 days without a consistent pattern. On observation, you note that she has acne of unusual severity, a deep voice, and significant hair on her face. The most likely diagnosis is:
- A. polycystic ovarian disease
  - B. fibroids
  - C. endometriosis
  - D. prolactinoma
  - E. hormone replacement therapy
- 33) In the case above, the treatment of choice for her condition is:
- A. bromocriptine
  - B. oral contraceptives
  - C. continuous GnRH agonist (Lupron)
  - D. laparoscopy
  - E. discontinuation of other therapies
- 34) Which of the following drugs is the best choice to induce ovulation for in vitro fertilization?
- A. GnRH agonist, continuously infused (Lupron)
  - B. Bromocriptine
  - C. High dose Estrogen
  - D. Clomiphene citrate (Selective estrogen receptor modulator)
  - E. Danazol
- 35) All of the following are true about fibroids (leiomyomata) EXCEPT:
- A. they are smooth muscle cell neoplasms
  - B. they are estrogen sensitive
  - C. they are well vascularized and rarely degenerate
  - D. the majority are asymptomatic
  - E. the majority are intramural

- 36) All of the following are true about endometriosis EXCEPT:
- A. they most likely arise from coelomic metaplasia, from the evidence to date
  - B. they are a frequent cause of infertility
  - C. they are a common cause of pain during menses
  - D. they are estrogen sensitive
  - E. oral contraceptives can be used for treatment
- 37) Adenomyosis
- A. should be suspected in teenagers with cyclic menstrual pain
  - B. may predispose the patient to endometrial adenocarcinoma
  - C. is the finding of endometrial glands and stroma in the myometrium
  - D. may be diagnosed by CA-125
  - E. is associated with DES exposure in vitro
- 38) Which of the following would NOT be used to treat endometriosis? Consider all age groups.
- A. Total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH/BSO)
  - B. Laser ablation via laparoscopy
  - C. GnRH agonists
  - D. Continuous oral contraceptives
  - E. Endometrial ablation
- 39) Which of the following is the most significant benefit of hormone replacement therapy in menopause in terms of mortality?
- A. Decreased risk of osteoporosis
  - B. Elimination of vasomotor symptoms (hot flashes)
  - C. Protection against cardiovascular disease
  - D. Improved epithelization of vaginal mucosa
  - E. Improved sense of well-being
- 40) All of the following are contraindications to hormone replacement therapy EXCEPT:
- A. Undiagnosed vaginal bleeding
  - B. Active thromboembolism
  - C. Breast cancer
  - D. Cervical cancer
  - E. Active liver disease
- 41) Which of the following changes is characteristic for the menopause?
- A. Decreased vaginal lubrication during sex
  - B. Higher circulating estradiol levels
  - C. Low serum FSH
  - D. Increased serum DHEA-sulfate level
  - E. Normal serum LH levels

- 42) What difference between male and female gonads accounts for the continued production of sex steroids in the male and not in the female?
- A. Apoptosis of endocrine cells occurs only in the female
  - B. The secreting cells are intimately tied to the gamete in the female, and lost with the loss of viable oocytes
  - C. Endocrine cells do not divide as often in the male, and thus do not reach senescence
  - D. The ability to produce estrogen from peripheral aromatization of androstenedione suppresses gonadal secretion
  - E. Scarring from successive ovulatory cycles inhibits continued production
- 43) The incidence of endometrial cancer can be reduced in the patient taking estrogen replacement by which of the following actions?
- A. detecting vaginal atrophy
  - B. administering calcium with estrogen
  - C. performing endometrial biopsy at frequent intervals
  - D. opposing estrogen with progesterone
  - E. down regulating with GnRH
- 44) The reductive (decreasing) influence of estrogen on which of the following lipid fractions is most critical in reducing CHD risk?
- A. HDL
  - B. Triglyceride
  - C. LDL
  - D. Cholesterol
  - E. Lipoprotein
- 45) At time of menopause, women have a 3-5 year period of accelerated bone loss which can be inhibited by estrogen therapy. All of the following are risk factors for accelerated bone loss **except**:
- A. Caucasian/Asian heritage
  - B. positive family history
  - C. small build
  - D. alcohol and tobacco use
  - E. weight bearing exercise
- 46) Which of the following is **not** true about the post-menopausal symptom of hot flashes?
- A. hot flashes go away with time
  - B. the earlier one enters menopause, the more likely she is to have hot flashes
  - C. the more rapidly menopause occurs, the more likely she is to have hot flashes
  - D. during the symptom, there is no objective temperature change measurable
  - E. symptoms are a result of estrogen withdrawal

- 47) Which of the following are contraindications to breast feeding?
- A. Low birth weight baby
  - B. Mastitis
  - C. Availability of pasteurized formula
  - D. Maternal concerns about appearance of breast
  - E. None of the above
- 48) Each of the following contributes towards abscess formation in breast EXCEPT:
- A. *Staph aureas* on the skin surface
  - B. Aggressive suckling and biting by the infant
  - C. Increased pressure in the alveolus from ductal obstruction
  - D. Decreased capillary blood flow
  - E. Continued breast feeding
- 49) Manual stimulation of the breast nipple is a technique that can be used to decrease postpartum bleeding. The mechanism by which this maneuver works is:
- A. stimulation of oxytocin production causing uterine contraction
  - B. stimulation of prolactin production
  - C. stimulation of opiate production
  - D. sexual stimulation causing vaginal contractions
- 50) All of the following stimulate prolactin secretion EXCEPT:
- A. sexual intercourse
  - B. estrogen
  - C. dopamine
  - D. sleep
  - E. nursing
- 51) Gynecomastia is a common symptom in fatty degeneration of the liver, especially in men. Why?
- A. decreased conjugation of estrogen produced from peripheral aromatization
  - B. decreased production of sex hormone binding globulin
  - C. decreased production of androgens from the adrenal
  - D. all of the above
  - E. A and B only
- 52) Three days after delivering her child, a woman presents with a new mass in her axilla. The mass is soft and mobile but tense. The most likely cause is:
- A. Hypermastia
  - B. Cyst
  - C. Hyperthelia
  - D. Neoplasm
  - E. Lymphadenopathy
- 53) Which of the following hormones is the primary stimulus for milk secretion?
- A. estrogen
  - B. oxytocin
  - C. growth hormone
  - D. progesterone
  - E. prolactin

- 54) Breast feeding is an effective form of contraception for only 3-6 months after delivery. Why?
- A. Prolactin levels fall, allowing dopamine to return to normal levels.
  - B. Continued suckling stimulates oxytocin secretion, preventing implantation
  - C. Sleep deprivation causes cortisol to rise, inhibiting GnRH secretion
  - D. The woman is too tired to participate in sexual activity
  - E. The regeneration of normal uterine size and function is delayed with breast feeding.
- 55) All of the following preparations have a use failure rate under 5% EXCEPT:
- A. oral contraceptive
  - B. intrauterine device
  - C. female sterilization
  - D. Depo-Provera
  - E. condom
- 56) The adverse affects of using an IUD for contraception include uterine pregnancy, ectopic pregnancy, and pelvic inflammatory disease. The normal risk of ectopic pregnancy in the population is 1/250 pregnancies. The risk with the IUD is increased to 1/50. What is the most likely explanation?
- A. the IUD irritates the lining of the uterus, stimulating endometrial tissue growth up the fallopian tubes
  - B. alteration of embryo targeting
  - C. selection bias - decreased number of intrauterine pregnancies
  - D. scarring from pelvic inflammatory disease causing decreased embryo mobility
- 57) Some IUDs are impregnated with progesterone in order to:
- A. inhibit ovulation
  - B. decrease local inflammation around the IUD, reducing the risk of ejection
  - C. support secretory endometrium around the IUD to allow a deeper surface in which to anchor
  - D. increase smooth muscle relaxation, reducing the risk of ejection
  - E. force women to purchase new devices each year
- 58) Which of the following design elements of the Dalkon Shield caused it to be removed from the market and forced its manufacturer to declare bankruptcy?
- A. shape
  - B. size
  - C. string
  - D. shield material
  - E. failure rate

- 59) Human Papilloma Virus (HPV) is a common genital infection in both men and women causing genital warts. 12-24 million people in the US between the ages of 15-49 are infected with HPV. HPV infection increases the risk of which of the following:
- A. ovarian cancer
  - B. endometrial cancer
  - C. vaginosis
  - D. cervical cancer
  - E. vulvar cancer
- 60) All of the following are factors in staging cervical cancer EXCEPT:
- A. nuclear/cytoplasmic ratio
  - B. metastases
  - C. obstruction of ureters
  - D. extent of local spread
  - E. depth of invasion
- 61) A 22 year old gravida I para II is seen for spotting between menses. She is using no birth control and is having regular intercourse. She was diagnosed with condylomata of the vulva 1 year previously, but these have not recurred since treatment. On physical exam an ulcerated irregular lesion of the cervix is seen. The most informative next step in management of this lesion would be:
- A. Cervical biopsy
  - B. Cryotherapy
  - C. Pap smear
  - D. Darkfield examination
  - E. Laser vaporization
- 62) Select the vessel that carries the most oxygenated blood in the fetus:
- A. pulmonary vein
  - B. pulmonary artery
  - C. inferior vena cava
  - D. umbilical artery
  - E. umbilical vein
- 63) The genetic component of trophoblastic disease is:
- A. equally derived from maternal and paternal chromosomes
  - B. derived entirely from maternal chromosomes
  - C. entirely derived from paternal chromosomes
  - D. derived from the mature endometrial cell
  - E. variable, depending on whether the mole is complete or partial
- 64) Which of the following features are common to complete and partial moles?
- A. diploid genome
  - B. paternally dominant genome
  - C. absence of fetal blood vessels
  - D. presence of fetus
  - E. increased incidence in Asian countries

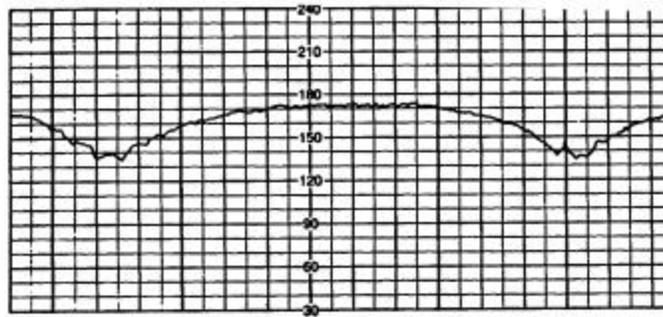
- 65) Placenta accreta, the abnormal adherence of placenta to the underlying myometrium, occurs due to failure of what entity?
- A. anchoring villi
  - B. Nitabuch's layer
  - C. uterine contraction
  - D. integrins
  - E. decidua capsularis
- 66) Abruptio placenta can be due to all of the following EXCEPT:
- A. cocaine abuse
  - B. pregnancy induced hypertension
  - C. failure of placental immune modulators
  - D. fibroids which severely deform the uterus
  - E. infection
- 67) A teratogen may be which of the following?
- A. a maternal condition
  - B. a chemical
  - C. a physical effect, such as temperature
  - D. a heavy metal
  - E. all of the above
- 68) Valproic acid (Depakote) is associated with which of the following?
- A. spina bifida
  - B. craniofacial abnormalities
  - C. intrauterine growth retardation
  - D. mental retardation
  - E. spontaneous abortion
- 69) Warfarin is associated with which of the following abnormalities?
- A. anencephaly
  - B. dysfunctional cartilage development
  - C. indistinct philtrum
  - D. cleft lip and palate
  - E. microcephaly
- 70) Alcohol is also a drug having adverse effects on the fetus, including growth retardation, microcephaly, mental retardation and subtle craniofacial abnormalities. Which of the following about alcohol and its adverse effects is true?
- A. polymorphisms of alcohol dehydrogenase confer greater susceptibility to teratogenic effect.
  - B. alcohol does not cross the placenta - its metabolic products are the culprits.
  - C. polymorphisms of acetaldehyde dehydrogenase produce increased tolerance for alcohol.
  - D. the dose-response relationship of alcohol and adverse outcome is not well established.

- 71) Which of the following congenital anomalies is related to diethylstilbestrol (DES) exposure in utero?
- A. Bicornate uterus
  - B. Unicornate uterus
  - C. Mayer-Rokitansky-Kuster-Hauser syndrome
  - D. T-shaped uterus
  - E. Uterus didelphis
- 72) Which of the following concerns regarding the use of birth control pills are scientifically valid?
- A. weight gain
  - B. ovarian cancer
  - C. birth defects
  - D. breast cancer
  - E. risk of death to mother
- 73) Effective "morning after contraception" can be achieved by administering
- A. 2 birth control pills 12 hours apart
  - B. Douching with ½% acetic acid
  - C. Inserting an IUD 5 days after intercourse
  - D. Ingestion of a cathartic
  - E. None of the above
- 74) Mechanisms of oral-contraception action include all of the following except:
- A. suppression of hypothalamic GNRH
  - B. suppression of pituitary LH and FSH
  - C. induction of an unfavorable cervical mucus which impair sperms transport
  - D. induce anovulation as a result of decreased FSH and LH
  - E. altered tubal mobility
- 75) Absolute contraindications to oral contraceptive use include all of the following except:
- A. dysfunctional uterine bleeding of unknown etiology
  - B. history of coronary artery disease, or previous myocardial ischemia
  - C. active hepatitis
  - D. smokers > 35 yrs of age
  - E. patients with Factor VIII deficiency
- 76) All of the following describe neural tube defects EXCEPT:
- A. encephalocele
  - B. myelomeningocele
  - C. omphalocele
  - D. anencephaly
  - E. spina bifida
- 77) All of the following are causes of polyhydramnios EXCEPT:
- A. tracheoesophageal fistula
  - B. bowel atresia
  - C. anencephaly
  - D. cleft palate
  - E. hydrops fetalis

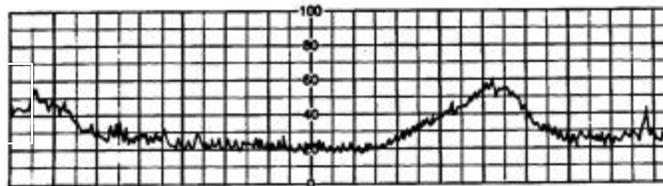
- 78) Accurate dating of a pregnancy is a prerequisite for many clinical interventions. Which of the following is the most accurate method of dating?
- A. measurement of femur length by ultrasound
  - B. biparietal diameter measurement by ultrasound
  - C. last menstrual period reported by the mother
  - D. early ultrasound crown-rump measurement
  - E.  $\beta$ -hCG measurement in the 8<sup>th</sup> week
- 79) From our understanding of uterine physiology, all of the following would have tocolytic effects EXCEPT:
- A. calcium channel blocker
  - B. beta-adrenergic blocker
  - C. magnesium sulfate
  - D. aspirin
  - E. oxytocin receptor antagonist.
- 80) Cytotec (a PGE1 analog) is an FDA approved drug for use in the treatment of NSAID-induced gastric ulcers. It is more commonly used off-label as an abortifacient or for the induction of labor. Which of the following are effects of prostaglandins in general?
- A. increase in bicarbonate and mucus production in the stomach
  - B. cervical ripening
  - C. uterine smooth muscle stimulation
  - D. diarrhea
  - E. all of the above
  - F. A, B, and C only
- 81) All of the following conditions elevate the maternal alpha-feto-protein (AFP) level EXCEPT:
- A. spina bifida
  - B. gastrochisis
  - C. Down syndrome
  - D. twin gestation
  - E. breakage of villi
- 82) At a pH of 7.4 and 37 degrees centigrade, the oxyhemoglobin association curve of fetal blood is in what position relative to that of the mother's?
- A. widely to the left
  - B. moderately to the left
  - C. identical
  - D. moderately to the right
  - E. widely to the right
- 83) The cornerstone of treatment of a preeclamptic patient is the administration of MgSO<sub>4</sub> which:
- A. decreases maternal mean arterial pressure
  - B. increases uterine blood flow
  - C. stops uterine contractions
  - D. prevents neonatal intraventricular hemorrhage
  - E. prevents eclamptic seizures

- 84) The pathophysiologic explanation of many of the clinical findings in preeclampsia includes vasospasm. Vasospasm develops as a result of:
- A. increased refractoriness/decreased sensitivity to angiotensin II
  - B. decreased refractoriness/increased sensitivity to angiotensin II
  - C. increased production of renin
  - D. increased deposition of fibrin
  - A. platelet deposition and low-grade DIC
- 85) Eclampsia is essentially pre-eclampsia with seizures. Pre-Eclampsia is associated with all of the following **except**:
- A. hypertension
  - B. proteinuria
  - C. peripheral edema
  - D. elevated uric acid and decreased platelets
  - E. decreased hematocrit
- 86) Changes in the pregnant woman's urinary system include all of the following EXCEPT:
- A. a marked increase in the GFR
  - B. glycosuria is common because the tubular reabsorptive capacity is exceeded
  - C. serum concentrations of uric acid and creatinine are higher as a result of the presence of the fetus
  - D. vascular reactivity to angiotensin II is reduced in pregnancy
  - E. there is dilatation of the ureters and renal pelvis (hydronephrosis)
- 87) The diagnosis of fetal hemolytic disease by amniotic fluid is to measure for bilirubin in the amniotic fluid (by checking the OD at 450 nm). The mechanism of fetal hemolytic disease is:
- A. maternal antibody directed against fetal ABO grouping
  - B. maternal IgG against fetal D antigens which crosses placenta and induces fetal hemolysis
  - C. fetal antibodies against maternal D antigens inducing self-hemolysis
  - D. mechanism is unknown
- 88) The final step prior to a uterine contraction is:
- A. increased level of prostaglandins
  - B. increased level of oxytocin
  - C. calcium movement into the myometrial cell
  - D. increased myometrial gap junctions
  - E. increased number of oxytocin receptors
- 89) Surfactant is a combination of phospholipids that has the characteristic of decreasing surface tension, thereby allowing alveoli to remain open with the infants first breath. When it is found that a fetus that needs to be delivered has immature lungs, what could be done?
- A. pray for time
  - B. give the mother androgens to induce fetal lung maturity
  - C. give the mother corticosteroids to induce fetal lung maturity
  - D. give the mother estrogen to induce fetal lung maturity
  - E. none of the above

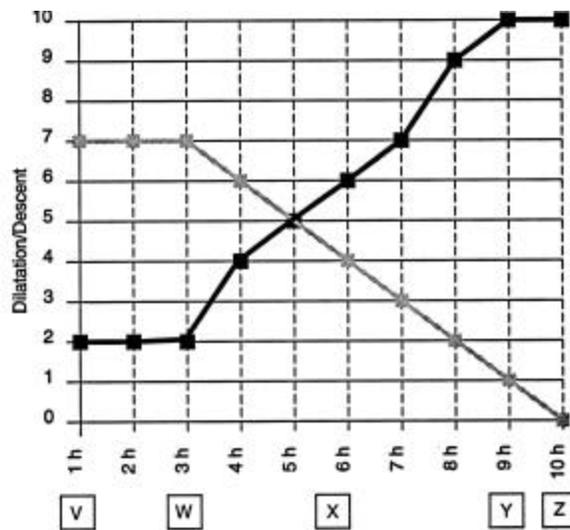
Fetal Heart Rate (bpm)



Intraamniotic Pressure (mmHg)



- 90) A 34 year old P1011 at 41 and 5/7<sup>th</sup> weeks gestation presents in labor. Her prenatal course was totally unremarkable. She was 5 cm dilated on admission, and the electronic fetal monitoring strip was interpreted as completely reassuring. Approximately two hours later the patient was reexamined and was found to be 5cm, 80% effaced, 0 station in the left occiput anterior position. The new fetal monitoring strip is shown above. What is the pattern shown above, and what does it represent?
- A. early deceleration due to head compression during contractions
  - B. late deceleration due to fetal acidemia
  - C. late deceleration due to fetal hypoxia
  - D. variable deceleration due to cord compression
  - E. variable deceleration due to fetal hypoxia
- 91) Given the variable etiology of uteroplacental insufficiency, the management of late decelerations could include all of the following EXCEPT:
- A. administration of tocolytics
  - B. oxygen administration to mother
  - C. putting the mother in left lateral position
  - D. walking
  - E. discontinuing oxytocin administration, if started.
- 92) Which of the following is **not** a test of fetal maturity ?
- A. DSPC (Di-saturated phosphatidyl choline)
  - B. TDx-FLM (Fluorescence polarization)
  - C. OD650
  - D. L/S (Lecithin/Sphingomyelin) ratio
  - E. Alpha-fetal protein
- 93) Which of the following is NOT true about amniotic fluid?
- A. it is hypotonic to serum due to fetal urination
  - B. 1 L of fluid turns over each day
  - C. it normally contains meconium due to fetal bowel movements
  - D. it serves to protect the fetus from injury and temperature changes
  - E. its lipid component is primarily phospholipids such as DPPC



Referring to the figure above diagramming normal labor, identify on the graph the following phases of labor using the following key:

- A. V to W
- B. V to Y
- C. V to Z
- D. W to X
- E. W to Y
- F. W to Z
- G. Y to Z
- H. not on graph

94) Active phase of labor

95) First stage of labor

96) All of the following are true about DPPC in surfactant EXCEPT:

- A. it is produced by Type I pneumocytes
- B. its saturated structure decreases the risk of oxidation upon exposure to air
- C. its saturated structure minimizes its size, allowing more molecules per unit area
- D. it decreases surface tension at the air lipid interface
- E. it is a major component of lamellar bodies

97) The Bishop score, derived after a pelvic examination during labor, evaluates the progress of labor and likelihood of successful induction. All of the following would likely be part of the Bishop score EXCEPT:

- A. fetal head station relative to ischial spine
- B. cervical effacement
- C. cervical dilation
- D. cervical consistency (hard vs. soft)
- E. none of the above

98) Infants born premature are at risk of all of the following EXCEPT:

- A. hyperthyroidism
- B. respiratory distress syndrome
- C. necrotizing enterocolitis
- D. dehydration
- E. hyperbilirubinemia

- 99) Given amniotic fluid physiology, all of the following would be expected to be a cause for oligohydramnios EXCEPT:
- A. pulmonary hypoplasia
  - B. premature rupture of membranes
  - C. thickening of chorionic cell layer
  - D. Potter's syndrome (renal agenesis)
  - E. cystic dysplasia
- 100) Treatment for neonatal respiratory distress syndrome might include all of the following EXCEPT:
- A. ECMO
  - B. Fluorinated hydrocarbons
  - C. Surfactant
  - D. blue light
  - E. positive pressure ventilation

***Please remember to write your name on the top of page one!***

***Answers will be posted on the web after all exams are in.***

**GOOD LUCK ...I wish you all health, happiness and successful careers**

# Answer Sheet, HST 071 Final

Name \_\_\_\_\_

ID# \_\_\_\_\_

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