PROBLEM SET – UTERINE PHYSIOLOGY

Cell to cell communication in the myometrium is primarily by means of
a) anchoring junction
b) chemical synapses
c) gap junctions
d) plasmodesmata
e) hemidesmosomes

The plasma membranes between myometrial cells are connected by 6 subunit structure referred to as a
a) connexon
b) actin fibril
c) myosin fibril
d) gap junction
e) open channel

The resistance of inter-myometrial gap junctions at term is approximately
a) 50 ohm/cm
b) 200 ohm/cm
c) 1000 ohm/cm
d) 50 ohm-cm
e) 100 ohm-cm

Which of these substances decreases the number and density of gap junctions?
a) connexin-43
b) oxytocin
c) estrogen
d) progesterone
e) prolactin

Calcium is stored in the
a) desmosomes
b) sarcoplasmic reticulum
c) ryanodine receptor
d) calmodulin
e) cell membrane

One useful pharmacologic agent that may be used clinically to reduce uterine activity is
a) nifedipine
b) thyroxine
c) FSH
d) Adenosine
e) Serine phosphate
The main purpose of the intracellular matrix in the myometrium is to
   a) provide enzymatic degradation of used myometrial fibers
   b) transmit contractile forces
   c) increase the solubility of collagen
   d) permit the myometrium to behave in an elastic fashion
   e) store calcium in an ionized state

A hexamer containing a heat and a tail
   a) actin
   b) myosin
   c) ATP-ase
   d) Sperm
   e) Calmodulin

The difference between oxytocin and arginine vasopressin is
   a) one disulfide bond
   b) one amino acid
   c) two amino acids
   d) spatial conformation only
   e) three amino acids

At term, oxytocin receptors
   a) increase 5 fold
   b) remain relatively constant
   c) increase 80 fold
   d) increase only if oxytocin is administered
   e) increase only if prostaglandin is given

Oxytocin receptors are found in the highest concentrations in
   a) the cervix
   b) the fundus
   c) the lower segment of the uterus
   d) the vagina
   e) the fundus and the cervix

Which of the following (choose one or more) cause the myometrium to contract
   a) PGE₁
   b) PGE₂
   c) PGF₂
   d) PGI2
   e) TxA₂
Which of the following is incorrect?

a) There are over 20 types of collagen
b) Type II collagen is not fibrillar
c) Proline and glycine create left handed helical configurations
d) Collagen is a triple stranded structure
e) Collagen constitutes 25% of mammalian protein

In the lumen of ER three pro-alpha chains of collagen bond to form procollagen. These bonds are made of

a) lysine
b) serine
c) calcium
d) magnesium-serine residues
e) hydroxyproline

Increased space between collagen bundles are noted as early as

a) 8 weeks
b) 16 weeks
c) 24 weeks
d) 32 weeks
e) 36 weeks

A 24 year old gravida 4 para 0 is now 10 weeks pregnant. She has had three prior pregnancy losses. The first at 8 weeks, the second and third at 16 weeks. The fetuses were chromosomally normal. It is very likely that she may be helped by (choose as many as are correct)

a) placing a mersilene band at the fundus
b) giving her progesterone for the first 16 weeks
c) giving her estrogen for the first 16 weeks
d) placing a mersilene band close to the internal os
e) placing a mersilene band at the external os