1254. The femoral sheath: C

A. is an extension into the thigh of fascia which lines the abdomino-pelvic cavity
B. contains major lymphatic channels
C. both A and B
D. neither A nor B

1255. Joints that are in or nearing in the close packed (most congruent) condition during normal standing include: D

A. hip joint
B. knee joint
C. talocrural (ankle) joint
D. both A and B
E. all of the above (A-C)

1256. During late stance phase of walking the pronation of the forefoot (anterior to transverse tarsal joint) is primarily caused by: A

A. reaction with the surface supporting the plantar surface of the foot
B. muscle activity of the anterior tibial compartment
C. muscle activity of the posterior tibial compartment
D. both A and B
E. all of the above (A-C)

1257. Which of the following do not insert onto the femur: D

A. pectineus
B. adductor brevis
C. both A and B
D. neither A nor B

1258. A patient who has lost a great toe (hallux) due to amputation at the metatarsophalangeal joint will tend to have an abnormality of gait related to the: B

A. early stance phase
B. late stance phase
C. swing phase
D. both A and B
E. all of the above (A-C)

1259. Muscles innervated by the superficial peroneal nerve produce which of the following actions: A

A. plantar flexion
B. inversion
C. both A and B
D. neither A nor B

1260. Muscles of the deep posterior compartment of the leg produce which of the following actions: C

A. plantar flexion
B. inversion
C. both A and B
D. neither A nor B

1261. "Foot drop" is a condition in which the patient is unable to dorsiflex the foot at the ankle; the plantar flexor muscles are unopposed. This condition could be caused by trauma to: B

A. superficial peroneal nerve
B. deep peroneal nerve
C. both A and B
D. neither A nor B

1270. Flexor hallucis brevis is: B

A. attached to the calcaneus
B. attached to the proximal phalanx of the medial toe
C. attached to the fifth metatarsal
D. both A and B
E. none of the above (A-C)

1271 Example of eccentric contraction include: A

A. deltoid activity during lowering of the outstretched arm from the horizontal to vertical position beside the body
B. soleus activity during return of the body to the neutral position after forward sway
C. iliopsoas activity during kicking of a football
D. both A and B
E. all of the above (A-C)

1272. Abductor hallucis is: D

A. attached to the calcaneus
B. attached to the proximal phalanx of the medial toe
C. attached to the fifth metatarsal
D. both A and B
E. none of the above (A-C)

1273. Soleus is: A

A. attached to the calcaneus
B. attached to the proximal phalanx of the medial toe
C. attached to the fifth metatarsal
D. both A and B
E. none of the above (A-C)

1274. The fascia lata is an insertion for the following muscle(s): A

A. gluteus maximus
B. gluteus medius
C. both A and B
D. neither A nor B

1275. Peroneus brevis is: C

A. attached to the calcaneus
B. attached to the proximal phalanx of the medial toe
C. attached to the fifth metatarsal
D. both A and B
E. none of the above (A-C)

1276. Peroneus tertius is: C

A. attached to the calcaneus
B. attached to the proximal phalanx of the medial toe
C. attached to the fifth metatarsal
D. both A and B
E. none of the above (A-C)

1284. Anterior tibial artery: A

A. becomes the dorsalis pedis artery in the foot
B. lies between tibialis anterior and extensor hallucis longus tendons at the ankle joint
C. both A and B
D. neither A nor B

1285. Vastus lateralis is innervated by which of the following nerves: B

A. ilioinguinal nerve
B. femoral nerve
C. obturator nerve
D. lateral femoral cutaneous nerve
E. genitofemoral nerve

1286. A ligament that is important in maintaining the medial portion of the longitudinal arch is the: E

A. deltoid ligament
B. calcaneofibular ligament
C. long plantar ligament
D. short plantar ligament
E. plantar calcaneonavicular ligament

1287. The bones of the lateral longitudinal arch of the foot include calcaneus, talus and cuboid: B

A. true
B. false

1288. The close association of the insertion of sartorius, gracilis, and semitendinosus muscles resembles the three webbed toes of certain aquatic birds. Thus, this region is often referred to as the pes anserina (goose's foot). This feature would be found on the: B

A. lateral tibial condyle
B. medial proximal shaft of the tibia
C. lateral femoral condyle
D. medial femoral condyle
E. tibial tuberosity

1289. Hip extension could be produced by: C

A. semimembranosus
B. gluteus maximus
C. both A and B
D. neither A nor B

1290. Which of the following inserts onto the base of the fifth metatarsal: E

A. peroneus longus
B. tibialis anterior
C. tibialis posterior
D. quadratus plantae
E. none of the above (A-D)

1291 During normal walking weight is borne by only one limb for approximately what percent of the gait cycle: C

A. 10%
B. 20%
C. 40%
D. 60%
E. 80%

1300. Flexor hallucis longus produces which of the following actions: B

A. knee flexion
B. plantar flexion
C. both A and B
D. neither A nor B

1301 The foot is "unlocked" when the head of the talus has been rotated medially and the joint surfaces of the midtarsal joint are in parallel planes: A

A. true
B. false

1302 Tibial nerve: C

A. lies in the deep posterior compartment of the leg
B. contains the motor fibers for all of the intrinsic plantar muscles of the foot
C. both A and B
D. neither A nor B

1303. The cruciate anastomosis of the hip joint receives a primary contribution from all of the following arteries except: C

A. medial femoral circumflex
B. lateral femoral circumflex
C. inferior epigastric
D. inferior gluteal
E. first perforating artery

1304. The arterial anastomosis around the hip (cruciate anastomosis) could potentially involve all of the following except: A

A. superior lateral genicular
B. medial femoral circumflex
C. lateral femoral circumflex
D. inferior gluteal artery
E. first perforating artery

1305 During normal walking, the soleus and gastrocnemius muscle group: C

A. produces dorsiflexion of the foot
B. produces plantar flexion of the foot
C. both B above and controls rate of passive dorsiflexion of the foot
D. both A above and controls rate of passive plantar flexion of the foot
E. both C above and controls rate of passive plantar flexion of the foot

1306. All of the following pass deep to the extensor retinacula at the ankle except: E

A. peroneus tertius
B. anterior tibial artery
C. tendon of extensor hallicus longus
D. tendon of tibialis anterior
E. superficial peroneal nerve

1307. All of the following are supplied by the lateral plantar nerve except: B

A. third lumbrical
B. flexor digitorum brevis
C. oblique head of adductor hallicus
D. first dorsal interosseus
E. flexor digiti minimi brevis

1317 Insertion of peroneus longus is on the: D

A. calcaneus
B. cuboid
C. both A and B
D. neither A nor B

1318. Origin of flexor digitorum brevis is on the: A

A. calcaneus
B. cuboid
C. both A and B
D. neither A nor B

1319. Insertion of tibialis posterior is on the: B

A. calcaneus
B. cuboid
C. both A and B
D. neither A nor B

1320. A person who has weak hip abductors on one side will, while walking, tend to excessively sway the upper body __?__ the weak side when it is in __?__: B

A. toward; swing phase
B. toward; stance phase
C. away from; swing phase
D. away; stance phase

1321 The interossei of the foot: D

A. are all involved in abduction of the toes
B. originate from the adjacent side of the proximal phalanx of toes 2, 3, 4
C. both A and B
D. neither A nor B

1322. The lateral articular surface of the distal femur is larger than the medial articular surface: A

A. true
B. false

1323. Which is <u>not</u> true regarding gluteus maximus: C

A. is a powerful hip extensor in running
B. inserts primarily into the fascia lata
C. covers the ischial tuberosity when the hip is flexed
D. is innervated by the inferior gluteal nerve
E. takes a portion of its origin from the sacrum

1324. All of the following have attachment to the calcaneous <u>except</u>: E

A. quadratus plantae
B. abductor hallucis
C. abductor digiti minimi
D. soleus
E. adductor hallucis

1333. Pott's Fracture involves a) fracture of the fibula 4-7 cm. proximal to the lateral malleolus and b) rupture of the deltoid ligament or avulsion of the medial malleolus. This condition is most likely produced by forced: C

A. plantar flexion
B. dorsiflexion
C. eversion
D. inversion
E. lateral rotation

1334 Extensor hallucis longus is innervated by which of the following nerves: C

A. femoral nerve
B. obturator nerve
C. deep peroneal nerve
D. lateral plantar nerve
E. none of the above (A-D)

1335. Adductor hallucis is innervated by which of the following nerves: D

A. femoral nerve
B. obturator nerve
C. deep peroneal nerve
D. lateral plantar nerve
E. none of the above (A-D)

1336 Structures which cross the ankle joint posterior to the medial malleolus include all of the following except: C

A. tendon of flexor hallucis longus
B. tendon of flexor digitorum longus
C. tendon of flexor digitorum brevis
D. tibial nerve
E. posterior tibial artery

1337. Adductor magnus is innervated by which of the following nerves: B

A. femoral nerve
B. obturator nerve
C. deep peroneal nerve
D. lateral plantar nerve
E. none of the above (A-D)

1338. Great saphenous vein travels with which of the following nerves: C

A. sural nerve
B. deep peroneal nerve
C. saphenous nerve
D. tibial nerve
E. superior gluteal nerve

1339. Small saphenous vein travels with which of the following nerves: A

A. sural nerve
B. deep peroneal nerve
C. saphenous nerve
D. tibial nerve
E. superior gluteal nerve

1348. Which of the following is a branch of femoral nerve: D

A. posterior femoral cutaneous
B. sural
C. both A and B
D. neither A nor B

1349. Insertion of tibialis posterior is on the: C

A. metatarsals 2, 3, 4
B. cuboid
C. both A and B
D. neither A nor B

1350. Which of the following muscles is innervated by the lateral plantar nerve: A

A. adductor hallucis
B. flexor digitorum brevis
C. both A and B
D. neither A nor B

1351 Which of the following muscles is innervated by the tibial nerve: C

A. popliteus
B. semimembranosús
C. both A and B
D. neither A nor B

1352. The interval between the first and second metatarsals contains: A

A. terminal branches of the deep peroneal nerve
B. communicating artery between dorsalis pedis and the lateral plantar artery
C. first dorsal interosseus muscle
D. first plantar interosseus muscle

1353. The medial longitudinal arch of the foot involves the: D

A. spring ligament
B. navicular bone
C. cuboid bone
D. both A and B
E. all of the above (A-C)

1354. Which of the following muscles inserts on the fibula: B

A. flexor hallucis longus
B. biceps femoris
C. both A and B
D. neither A nor B

1355. Which of the following muscles produces dorsi flexion: C

A. tibialis anterior
B. extensor digitorum longus
C. both A and B
D. neither A nor B

1363. Which of the following nerve/vessel pairs is incorrect: B

A. sural nerve/short saphenous vein
B. superficial peroneal nerve/peroneal artery
C. tibial nerve/posterior tibial nerve
D. deep peroneal nerve/anterior tibial nerve
E. tibial nerve/popliteal artery

1364. Which muscle(s) do not produces movement at the knee: B

A. vastus medialis
B. adductor magnus
C. short head of biceps femoris
D. sartorius
E. all of the above (A-D)

1365. Muscles attached to the ischial tuberosity include all except: D

A. inferior gemellus
B. adductor magnus
C. long head of biceps femoris
D. gluteus medius
E. semitendinosus

1366. Select the incorrect statement about gluteus maximus: B

A. gets its entire motor innervation from the inferior gluteal nerve
B. is an important hip stabilizer in walking
C. produces hip extension
D. inserts primarily into the iliotibial tract
E. takes a portion of its origin from the sacrotuberous ligament

1367. In a normal standing posture, the hip joint (os coaxe-femur) will attempt to ? while the knee joint (femur-tibia) will attempt to ___?___: A

A. extend; extend
B. extend; flex
C. flex; extend
D. flex; flex

1368. Which of the following is a branch of posterior tibial artery: C

A. medial plantar artery
B. peroneal artery
C. both A and B
D. neither A nor B

1369. Flexor hallucis longus muscle: A

A. has its origin from the fibula
B. can be palpated (its tendon) posterior to medial malleolus
C. is innervated by the common peroneal nerve
D. receives its primary blood supply directly from the posterior tibial artery
E. inserts onto the base of the first metatarsal

1370. A ballistic movement in the human: B

A. often results in a functional reversal of the usually defined "origin" and "insertion" of the active muscles
B. is usually initiated by muscles related to the proximal portion of the moving body segment(s)
C. is usually an uncontrollable movement
D. both A and B
E. none of the above (A-C)

1378. "Foot drop" is a condition in which the patient is unable to dorsiflex the foot at the ankle; the plantar flexor muscles are unopposed. This condition could be caused by trauma to: **A**

A. common peroneal nerves
B. femoral nerve
C. both A and B
D. neither A nor B

1379. The obturator internus tendon: **B**

A. traverses the greater sciatic foramen
B. traverses the lesser sciatic foramen
C. both A and B
D. neither A nor B

1380. Which muscle(s) would produce primary action in the subtalar joints: **D**

A. extensor digitorum longus
B. popliteus
C. gastrocnemius
D. peroneus longus
E. all of the above (A-D)

1381 The femoral sheath: **D**

A. contains three compartments; one each for the femoral artery, vein and nerve
B. has the saphenous opening on its anterior surface for the great saphenous vein
C. both A and B
D. neither A nor B

1382. The obturator externus tendon: **D**

A. traverses the greater sciatic foramen
B. traverses the lesser sciatic foramen
C. both A and B
D. neither A nor B

1383. Tibialis anterior produces which of the following actions: **B**

A. plantar flexion
B. inversion
C. both A and B
D. neither A nor B

1384. Tibialis posterior produces which of the following actions: **C**

A. plantar flexion
B. inversion
C. both A and B
D. neither A nor B

1385. Which of the following has a direct anastomoses with major vessels of the plantar foot: **A**

A. dorsalis pedis artery
B. peroneal artery
C. both A and B
D. neither A nor B

1396. Sensation along the lateral margin of the foot is transmitted by: B

A. branches of the femoral nerve
B. branches of the tibial nerve
C. branches of the deep peroneal nerve
D. branches of the superficial peroneal nerve

1397. Sensation along the lateral side of the first toe is transmitted by: C

A. branches of the femoral nerve
B. branches of the tibial nerve
C. branches of the deep peroneal nerve
D. branches of the superficial peroneal nerve

1398. Peroneus tertius muscle is innervated by: C

A. branches of the femoral nerve
B. branches of the tibial nerve
C. branches of the deep peroneal nerve
D. branches of the superficial peroneal nerve

1399. Nail bed of the middle toe is innervated by: B

A. branches of the femoral nerve
B. branches of the tibial nerve
C. branches of the deep peroneal nerve
D. branches of the superficial peroneal nerve

1400. Flexor hallucis longus muscle is innervated by: B

A. branches of the femoral nerve
B. branches of the tibial nerve
C. branches of the deep peroneal nerve
D. branches of the superficial peroneal nerve

1401 Pectineus muscle is innervated by: A

A. branches of the femoral nerve
B. branches of the tibial nerve
C. branches of the deep peroneal nerve
D. branches of the superficial peroneal nerve

1402. Sacrospinous ligament traverses the: C

A. greater sciatic foramen
B. lesser sciatic foramen
C. both A and B
D. neither A nor B

1403. Posterior femoral cutaneous nerve traverses the: A

A. greater sciatic foramen
B. lesser sciatic foramen
C. both A and B
D. neither A nor B

1404. During normal walking (forward), the location of the center of gravity of the body is ? relative to its location during relaxed standing: A

A. shifted anteriorly
B. shifted posteriorly
C. unchanged

1413. The interossei of the foot: C

A. are all innervated by lateral plantar nerve
B. flex the metatarsal-phalangeal joints
C. both A and B
D. neither A nor B

1414. The following is true about the dorsalis pedis artery except it: C

A. is the continuation of the anterior tibial artery
B. is the primary source of arterial blood to the dorsum of the foot
C. lies between the tendons of flexor hallucis longus and flexor digitorum longus
D. enters the plantar aspect of the foot between metatarsals 1 and 2

1415. Which of the following vessel/nerve pairing (course together) is incorrect: D

A. great saphenous vein/saphenous nerve
B. small saphenous vein/sural nerve
C. anterior tibial artery/deep peroneal nerve
D. profunda femoris artery/femoral nerve

1416. Which of the following statements is correct: B

A. the superficial fascia is avascular
B. the deep fascia thickens to form retinacula
C. both A and B
D. neither A nor B

1417. Branches of the femoral nerve supply: C

A. sensation to medial side of the foot
B. vastus lateralis, intermedius and medialis
C. both A and B
D. neither A nor B

1418. Contents of the femoral triangle include: E

A. profunda femoris artery
B. great saphenous vein
C. femoral canal
D. femoral sheath
E. all of the above (A-D)

1419. External rotation of the hip is produced by: B

A. tensor fascia lata
B. quadratus femoris
C. both A and B
D. neither A nor B

1420. Traumatic injury to the femoral triangle would not involve: D

A. femoral nerve
B. saphenous nerve
C. both A and B
D. neither A nor B

1429. Piriformis muscle: C

A. can be palpated if the hip is flexed
B. lies inferior to the sciatic nerve as they traverse the greater sciatic foramen
C. is a lateral rotator of the hip
D. is supplied by the common peroneal portion of the sciatic nerve
E. all of the above (A-D)

1430. Which muscle(s) has its origin from the calcaneus: B

A. adductor hallucis
B. abductor hallucis
C. both A and B
D. neither A nor B

1431 The cruciate anastomosis: A

A. lies at the level of the lesser trochanter
B. is a unique type of arterial anastomosis found only at the hip joint
C. both A and B
D. neither A nor B

1432. Hip extension could be produced by: D

A. iliopsoas
B. tensor fascia lata
C. both A and B
D. neither A nor B

1433. Which can be found in the lateral compartment of the leg: B

A. main trunk of peroneal artery
B. superficial peroneal nerve
C. both A and B
D. neither A nor B

1434. Muscle(s) which could produce inversion include: E

A. tibialis anterior
B. tibialis posterior
C. extensor hallicus longus
D. flexor hallicus longus
E. all of the above (A-D)

1435. Tibial nerve: D

A. supplies the short head of biceps femoris
B. provides sensory innervation to the medial side of the leg
C. both A and B
D. neither A nor B

1436. Which of the following is/are attached to the ischia tuberosity: E

A. long head of biceps femoris
B. adductor magnus
C. semitendinosus
D. inferior gemellus
E. all of the above (A-D)

1445. The ligament to the head of the femur contains a blood vessel in a large percentage of adults: A

A. true
B. false

1446. The great sciatic foramen transmits all of the following except the: D

A. superior gluteal artery
B. inferior gluteal artery
C. internal pudendal artery
D. external pudendal artery

1447. The lesser tubercle of the humerus provides insertion for: B

A. supraspinatus
B. subscapularis
C. teres minor
D. infraspinatus
E. all of the above (A-D)

1448. The femoral triangle: D

A. has a portion of vastus lateralis in its lateral floor
B. contains lymph nodes which drain the skin of the seventh thoracic dermatome
C. has adductor longus muscle as its base
D. contains the femoral nerve
E. all of the above (A-D)

1449. Which muscle(s) is/are capable of producing flexion at one joint and extension at a second joint: E

A. semimembranous
B. rectus femoris
C. lumbricales of foot
D. long head of biceps femoris
E. all of the above (A-D)

1450. The lateral longitudinal arch of the foot involves such bones as the calcaneus and cuboid as well as the spring ligament: B

A. true
B. false

1451 The capitulum of the humerus is lateral: A

A. true
B. false

1452 A male sacrum is likely to be wide and long as compared with a female sacrum: B

A. true
B. false

1453. Adductor magnus muscle: A

A. derives its primary blood supply from branches of the profunda femoris artery
B. gets nerve supply from femoral and obturator nerves
C. inserts on the medial condyle of the tibia
D. has partial origin from the ischial spine
E. all of the above (A-D)

1458 The organ-system or region that completes its morphological development first (as indicated by critical period analysis) is the: **B**

A. central nervous system
B. upper limb
C. digestive system
D. lower limb
E. external genitalia

1459. Which of the following regions would tend to begin and complete its development first: **A**

A. shoulder
B. hand
C. hip
D. foot

1460. The secondary oocyte undergoes completion of the second maturation division: **B**

A. before ovulation
B. at fertilization
C. after ovulation
D. prenatally
E. at puberty

1461 The embryonic epiblast gives rise to or contribute cells to which of the following germ layers: **E**

A. ectoderm
B. mesoderm
C. endoderm
D. both A and B
E. all of the above (A-C)

1462 At birth, the conceptus is composed primarily of the: **D**

A. fetus
B. placenta, amnion, and chorion
C. endometrial decidua
D. both A and B
E. all of the above (A-C)

1463 The chorionic cavity is formed: **B**

A. between the embryonic epiblast and the cytotrophoblast
B. within the extraembryonic mesoderm
C. within the lateral plate intraembryonic mesoderm
D. both A and B
E. all of the above (A-C)

1464. The prochordal plate: **D**

A. is a potent inducer region for future head structures
B. becomes a portion of the oropharyngeal membrane
C. is formed within the embryonic epiblast
D. both A and B
E. all of the above (A-C)

1465 The ovarian follicular cells release: **C**

A. follicle stimulating hormone
B. chorionic gonadotrophin
C. estrogen
D. both A and B
E. all of the above (A-C)

1475. A portion of the secondary yolk sac of the human: **B**

A. contains large amounts of intracellularly stored yolk material used for nourishment of the embryo
B. give rise to much of the embryonic blood
C. both A and B
D. neither A nor B

1476. The correct statement(s) is/are: **C**

A. ovarian follicles and thecal cells produce estrogenic compounds
B. the corpus luteum and transformed thecal cells produce progesterone
C. both A and B
D. neither A nor B

1477. Which of the following cells are originally associated with the yolk sac: **C**

A. primordial germ cells
B. erythrocytes
C. both A and B
D. neither A nor B

1478. Indicate the correct statement: **B**

A. as the head fold develops, the septum transversum, developing heart and buccopharyngeal membrane are pushed caudally and ventrally. This impinges upon the yolk sac and forms the foregut
B. mesoderm forms most of the glands of the gastrointestinal tract
C. the buccopharyngeal membrane ruptures at the end of the third week of development to open the gastrointestinal tract to the amniotic cavity
D. during transverse folding of the embryo, the lateral parts of the intraembryonic coelom are brought together on the ventral aspect of the embryo. In the region of the future peritoneal cavity, the ventral mesentery degenerates, resulting in a large embryonic peritoneal cavity extending from inferior to the heart to the pelvic region
E. the foregut is supplied by the celiac artery

1479. The normal allocation of chromosomes in a sperm is: **C**

A. 23 autosomes
B. 23 autosomes plus a sex chromosome
C. 22 autosomes plus a sex chromosome
D. 22 paired autosomes plus a pair of sex chromosomes
E. 22 autosomes

1480. The space between the somatopleuric and splanchnopleuric extraembryonic mesoderm is known as: **E**

A. the primitive yolk sac
B. the secondary yolk sac
C. the blastocoele
D. the amniotic cavity
E. the extra-embryonic coelom

1481 The chorionic cavity: **B**

A. is equivalent to the intra-embryonic mesoderm
B. is formed by a coalition of exocoelomic cysts
C. contains the free-floating conceptus
D. communicates with the uterine endometrium via the chorionic plate

1490. By the 4th month, the barrier separating maternal and fetal blood is comprised of: A

A. syncytium and endothelium
B. endothelium and cytotrophoblast
C. syncytium an cytotrophoblast
D. endothelium and connective tissue
E. all of the above (A-D)

1491 Maternal tissue fluids and blood plasma comes in contact with: D

A. cytotrophoblast
B. syncytiotrophoblast
C. extraembryonic mesoderm
D. both A and B
E. all of the above (A-C)

1492. Sublethal teratogenic insult to the conceptus during the third and early fourth weeks of gestation will probably cause congenital abnormalities in the central nervous system: A

A. true
B. false

1493. A 25 year-old female states that she has a very regular menstrual (uterine) cycle that is 24 days in length. The projected time of ovulation for this woman would be about the: E

A. 14th day following the beginning of her last menstrual period
B. 12th day following the end of her last menstrual period
C. 12th day following the beginning of her last menstrual period
D. 10th day following the end of her last menstrual period
E. 10th day following the beginning of her last menstrual period

1494. Sublethal teratogenic insult to the conceptus during the third and early fourth weeks of gestation will probably cause congenital abnormalities in the external genitalia: B

A. true
B. false

1495. At the time of the first missing menstrual period, the conceptus is usually: C

A. 3 days old
B. 5 days old
C. 3 weeks old
D. 5 weeks old

1496. Of the following, the first region to initiate and complete its major development should be the: E

A. external genitalia
B. foot
C. hand
D. hip
E. shoulder

1497. Which statement(s) is/are correct: A

A. the prochordal plate aids in organizing the "head" region of embryonic disc
B. the neural plate induces the formation of the notochord
C. the somites induce the formation of the neural ectoderm
D. both A and B
E. all of the above (A-C)

1506. Lines the chorionic cavity after the third developmental week: **D**

A. cytotrophoblast
B. syncytiotrophoblast
C. both A and B
D. neither A nor B

1507. Always normally situated between maternal and fetal blood: **B**

A. cytotrophoblast
B. syncytiotrophoblast
C. both A and B
D. neither A nor B

1508. At the time of initiation of implantation: **B**

A. the endometrium is in the proliferative phase
B. the predominant ovarian hormone is progesterone
C. the conceptus is approximately one day "old" (post fertilization)
D. both A and B
E. all of the above (A-C)

1509. The zona pellucida: **B**

A. is an impenetrable barrier to spermatozoa at the time of ovulation
B. assists in the timing of the human implantation process
C. surrounds the secondary oocyte and the corona radiata
D. both A and B
E. all of the above (A-C)

1510. An embryo was exposed to thalidomide at the middle of the "critical period" of development for the upper limb. Thalidomide is very toxic to proliferating cell populations and causes massive cellular injury and death. Which of the following statements is/are <u>correct</u>: **C**

A. the shoulder region would be damaged more than the hip region
B. the hip region would be damaged more than the foot region
C. the foot region would be damaged more than the hand region
D. both A and B
E. all of the above (A-C)

1511. Choose the <u>incorrect</u> statement: **B**

A. as the head fold develops the septum transversum, developing heart and buccopharyngeal membrane are pushed caudally and ventrally. This impinges upon the yolk sac and forms the foregut
B. mesoderm forms most of the glands of the gastrointestinal tract
C. the buccopharyngeal membrane ruptures at the end of the third week of development to open the gastrointestinal tract to the amniotic cavity
D. during transverse folding of the embryo, the lateral parts of the intraembryonic coelom are brought together on the ventral aspect of the embryo. In the region of the future peritoneal cavity, the ventral mesentery degenerates, resulting in a large embryonic peritoneal cavity extending from inferior to the heart to the pelvic region
E. the foregut is supplied by the celiac artery

1512. Autosomal trisomy <u>most</u> frequently results from nondisjunction during the first meiotic division in oogenesis: **A**

A. true
B. false

1524. Capacitation of spermatozoa is an activation process that involves changes in the surface coat and plasma membrane over the acrosome: **A**

A. true
B. false

1525. Implantation will not take place unless the zona pellucida is lost: **A**

A. true
B. false

1526. The results of fertilization include the determination of chromosomal sex and the initiation of cleavage: **A**

A. true
B. false

1527. Concerning birth defects: **B**

A. chromosomal aberrations are responsible for 85% of congenital malformations
B. a single teratogen may produce a variety of malformations
C. most malformations are induced prior to implantation
D. the incidence of specific malformations is the same worldwide
E. malformations cannot be detected in utero

1528. The early stages of cleavage are characterized by: **D**

A. formation of a hollow ball of cells
B. formation of the zona pellucida
C. increase in the size of the cells in the zygote
D. increase in the number of cells in the zygote
E. none of the above (A-D)

1529. The most common site for implantation in ectopic pregnancy is the: **D**

A. internal os of the uterus
B. mesentery
C. ovary
D. oviduct
E. none of the above (A-D)

1530. The primitive streak: **D**

A. is derived from the outer cells of the morula
B. is formed during the second week in development
C. persists as the cloacal membrane
D. is the site of involution of epiblast cells to form mesoderm
E. was done in a bathing suit

1531 All is true about primary oocytes except they: **B**

A. are arrested in prophase of the first meiotic division
B. continue to form after birth
C. together, with surrounding epithelial cells, form a primordial follicle
D. suffer from atretion until only approximately 40,000 are left at puberty

1539. During the third week of development: D

A. the heart primordium becomes located ventral to the pharynx
B. the neural fold fuse at the posterior neuropore
C. the last somite is formed
D. epiblast cells involute at the primitive streak
E. amnioblasts grow out from the epiblast to form the amnion

1540. At fertilization: E

A. the ovum completes the 2nd meiotic division
B. cleavage is initiated
C. the sex of the individual is determined
D. the diploid number of chromosomes is restored
E. all of the above (A-D)

1541. Which of the following cells are originally associated with the yolk sac: D

A. amnioblasts
B. pigment cells
C. both A and B
D. neither A nor B

1542. Teratomas: B

A. are induced by teratogens
B. are often found in the sacral region
C. both A and B
D. neither A nor B

1543. A portion of the secondary yolk sac of the human: A

A. gives rise to digestive tract epithelium
B. contains the primordial germ cells after they have migrated from the body stalk
C. both A and B
D. neither A nor B

1544. The bilaminar germ disc: A

A. consists of hypoblast and epiblast
B. is derived from trophoblast cells
C. both A and B
D. neither A nor B

1545. Meiosis is completed within the gonad during gametogenesis in which sex: B

A. gametogenesis in human female
B. gametogenesis in human male
C. both A and B
D. neitherA nor B

1546. Gonia cells produced during gametogenesis are usually present in 65-year old individuals of which sex: B

A. gametogenesis in human female
B. gametogenesis in human male
C. both A and B
D. neither A nor B

1556. The correct statement(s) is/are: D

A. estrogenic compounds stimulate glandular secretion of the endometrial glands
B. progesterone stimulates proliferation of the endometrial stroma
C. both A and B
D. neither A nor B

1557. Bleeding that may occur near the 13th day of development: C

A. may be confused with normal menstrual bleeding
B. is caused by increased blood flow into lacunar spaces
C. both A and B
D. neither A nor B

1558. Syncytiotrophoblast and extraembryonic mesoderm is established in the: B

A. conceptus before implantation is started
B. conceptus after implantation is started
C. both A and B
D. neither A nor B

1559. Female pronucleus are fully formed ___?___: D

A. before fertilization
B. after fertilization
C. both A and B
D. neither A nor B

1560. Which of the following synthesizes human chorionic gonadotropin: A

A. human syncytiotrophoblast
B. human cytotrophoblast
C. both A and B
D. neither A nor B

1561. During the fourth week in development the growth of the head, tail, and lateral fold transforms the flat germ disc into a tubular embryo: A

A. true
B. false

1562. In the third week of human embryonic development: D

A. the amnion appears
B. a bilaminar embryonic disc is formed
C. the body stalk is moved to a ventral position and joins with the stalk of the yolk sac to form the umbilical cord
D. the neural plate is induced by the notochordal process and associated mesoderm
E. the uteroplacental circulation is established

1563. Trophoblast and inner cell mass portions are evident in the: C

A. conceptus before implantation is started
B. conceptus after implantation is started
C. both A and B
D. neither A nor B

1564. The intervillous space of the placenta: B

A. contain low-pressure, low-flow maternal blood
B. are located between the chorionic plate and the cytotrophoblastic shell
C. both A and B
D. neither A nor B

1565. The extraembryonic membrane which contributes the most tissue to the formation of the placenta is the: B

A. amnion
B. chorion
C. yolk sac
D. connecting (body) stalk
E. decidua

1566. What tissue is <u>never</u> interposed between fetal and maternal blood in the human placenta: A

A. maternal capillary endothelium
B. fibrin or fibrinoid substances
C. extra-embryonic mesoderm
D. syncytiotrophoblast

1567. Functions of the placenta include all of the following <u>except</u>: A

A. exchange of maternal and fetal blood
B. exchange of nutrients and electrolytes
C. hormone production
D. gas exchange
E. transmission of maternal antibodies

1568. Which of the following structures is/are a portion of the conceptus: D

A. fetus
B. placenta
C. decidua basalis
D. both A and B
E. all of the above (A-C)

1569. The chorionic villi of the placenta are <u>most</u> numerous in the region of the: B

A. decidua capsularis
B. chorionic plate
C. basal plate
D. maternal septae
E. decidua basalis

1570. The following list contains components of the "placental barrier" during the first trimester of pregnancy. Which one component is <u>lost</u> during late pregnancy: B

A. the endothelial lining of fetal capillaries
B. the cytotrophoblast
C. the syncytiotrophoblast
D. the basement membrane of fetal capillaries
E. none of the above (A-D)

1571 Major nutrient source for the embryo: D

A. fluid in the amniotic cavity
B. fluid in the chorionic cavity
C. both A and B
D. neither A nor B

1581 All is true about amniotic fluid except it: C

A. is derived from maternal blood
B. is swallowed by the fetus from the beginning of the 5th month
C. restricts fetal movement within the amniotic cavity
D. absorbs jolts to the fetus

1582. Placental adaptations which enhance placental transport include: C

A. fetal shunt
B. counter-current circulation
C. both A and B
D. neither A nor B

1583. Which of the following substances cross(es) the human placental membrane by the process of simple diffusion: B

A. protein
B. drugs
C. both A and B
D. neither A nor B

1584. All of the following placental transport mechanisms require the expenditure of cellular energy except: C

A. active transport
B. pinocytosis
C. simple diffusion
D. facilitated diffusion

1585. Partially derived from maternal tissue fluids: C

A. fluid in the amniotic cavity
B. fluid in the chorionic cavity
C. both A and B
D. neither A nor B

1586. May contact fetal nervous system: A

A. fluid in the amniotic cavity
B. fluid in the chorionic cavity
C. both A and B
D. neither A nor B

1587. The conceptus is the: D

A. embryo/fetus
B. amnion and chorion
C. decidua
D. both A and B
E. all of the above (A-C)

1588. The most highly differentiated metabolically and functionally active tissue of the placenta is a portion of the: B

A. amnion
B. chorion
C. endometrium
D. both A and B
E. all of the above (A-C)

1592. Derivative from the 2nd branchial arch include: B

A. secondary palate
B. stapes
C. anterior two-thirds of tongue
D. nasal septum

1593. A bilateral cleft of the upper lip can be caused by: B

A. failure of maxillary processes to meet and fuse together
B. failure of maxillary processes to meet and fuse with median nasal processes
C. both A and B
D. neither A nor B

1594. The parenchymal (chief) cells of the human parathyroid gland: B

A. originate from the embryonic thyroglossal duct
B. produce a peptide hormone that elevates serum calcium
C. vary greatly in size depending on the degree of stimulation by the anterior pituitary
D. are not as numerous as the oxyphil cells
E. all of the above (A-D)

1595. Indicate the correct statement: D

A. cleft palate and cleft lip are two anomalies that are always seen together
B. the intermaxillary segment of the upper jaw gives rise to the secondary palate
C. mesenchyme from the 1st branchial arch gives rise to the facial muscles
D. frontonasal processes forms the apex of the nose

1596. Branchial arches ___?___ form significant portions of the adult tongue: D

A. I and II
B. II and III
C. III, IV, and VI
D. I, III and IV

1597. Which is not derived from the mesectoderm of the first branchial arch: A

A. mandibular division of trigeminal nerve
B. temporalis muscle
C. incus
D. medial pterygoid muscle
E. anterior belly of digastric muscle

1598. The cartilaginous bars of the branchial arches contribute to each of the following except: C

A. styloid process
B. hyoid bone
C. epiglottis
D. sphenomandibular ligament
E. cricoid cartilage of larynx

1599. Crypts of palatine tonsils develop from: B

A. pharyngeal pouch 1
B. pharyngeal pouch 2
C. pharyngeal pouch 3
D. pharyngeal pouch 4
E. this structure is not derived from a pharyngeal pouch

1608. A fistula is found that runs between the palatine tonsil fossa and the skin of the neck immediately anterior to the sternocleidomastoid muscle. Developmental failure occurred: **C**

A. with a rupture of the tissue between the third branchial cleft and third pharyngeal pouch
B. with a failure to close the first branchial cleft
C. with a failure to obliterate the cervical sinus
D. both A and B
E. all of the above (A-C)

1609. A syndrome involving a lack of pharyngeal pouch III would result in a lack of the thymus gland and palatine tonsil: **B**

A. true
B. false

1610. What is the origin of the mucosa of the oral pharynx: **C**

A. branchial arch I
B. branchial arch II
C. branchial arch III
D. branchial arch IV
E. not of branchial arch origin

1611 What is the origin of the genioglossus muscle: **E**

A. branchial arch I
B. branchial arch II
C. branchial arch III
D. branchial arch IV
E. not of branchial arch origin

1612. What is the origin of the mucosa of the oral cavity: **A**

A. branchial arch I
B. branchial arch II
C. branchial arch III
D. branchial arch IV
E. not of branchial arch origin

1613. What is the origin of the pharyngeal constrictor muscles: **D**

A. branchial arch I
B. branchial arch II
C. branchial arch III
D. branchial arch IV
E. not of branchial arch origin

1614. What is the origin of the mandible: **A**

A. branchial arch I
B. branchial arch II
C. branchial arch III
D. branchial arch IV
E. not of branchial arch origin

1615. What is the origin of the thyroxin producing cells of the thyroid: **E**

A. pharyngeal pouch I
B. pharyngeal pouch II
C. pharyngeal pouch III
D. pharyngeal pouch IV
E. not of pharyngeal pouch origin

1624. The thyroid gland is derived from: **D**

A. pharyngeal pouch 3
B. pharyngeal pouch 4
C. both A and B
D. neither A nor B

1625. Which of the following structures are associated with the 2nd pharyngeal arch: **D**

A. glossopharyngeal muscle
B. the malleus bone
C. both A and B
D. neither A nor B

1626. What is the origin of the superior parathyroid glands: **D**

A. pharyngeal pouch I
B. pharyngeal pouch II
C. pharyngeal pouch III
D. pharyngeal pouch IV
E. not of pharyngeal pouch origin

1627. The thyroid gland: **C**

A. originates from an endodermal outgrowth at the base of the primordial tongue
B. is usually detached from the thyroglossal duct in the adult
C. both A and B
D. neither A nor B

1628. The follicular cells of the thyroid gland: **A**

A. are the source of thyroglobulin
B. originate from the 5th pharyngeal pouch
C. both A and B
D. neither A nor B

1629. Tonsillar tissue is derived from: **D**

A. pharyngeal pouch 3
B. pharyngeal pouch 4
C. both A and B
D. neither A nor B

1630. If the lateral palatal processes of the maxillary eminence do <u>not</u> fuse with each other the resultant congenital defect may include: **D**

A. cleft uvula
B. cleft hard palate
C. cleft lip
D. both A and B
E. all of the above (A-C)

1631. The upper lip normally contains tissue derived from all of the following <u>except</u> the: **D**

A. medial nasal eminence
B. second branchial arch
C. maxillary eminence
D. lateral nasal eminence

1640. Muscles attaching to the thyroid cartilage include some that are derived from the: D

A. sixth branchial arch
B. fourth branchial arch
C. second branchial arch
D. both A and B
E. all of the above (A-C)

1641 A mother tells you that her child's eyes do not seem to open as wide as other children and adults she sees. Upon examination, you also note that the child seems to be unable to direct its gaze upwards. The child has no history of postnatal injury or major illness. The likely cause(s) of the finding include developmental defects related to: B

A. facial nerve and/or related muscles
B. oculomotor nerve and/or related muscles
C. ophthalmic division of trigeminal nerve and/or related muscles
D. both A and B
E. all of the above (A-C)

1642. The muscles of the tongue deep to the posterior one-third of the tongue are derived from: C

A. endoderm of the third branchial arch
B. mesoderm of the third branchial arch
C. mesoderm of preoccipital somites
D. both A and B
E. all of the above (A-C)

1643. Thyroid follicular cells (thyroxin producing) are of which origin: A

A. endoderm
B. mesoderm
C. ectoderm
D. endoderm and mesoderm
E. endoderm and ectoderm

1644. Muscles derived from the mesectoderm of the first branchial arches include the: B

A. muscles of the larynx and pharynx
B. muscles of mastication
C. muscles of the tongue
D. both A and B
E. all of the above (A-C)

1645. The parathyroid glands situated near the inferior portion of the lateral lobes of the thyroid glands are usually derived from the: A

A. dorsal "wing" of the third pharyngeal pouch
B. ventral "wing" of the third pharyngeal pouch
C. dorsal "wing" of the fourth pharyngeal pouch
D. ventral "wing" of the fourth pharyngeal pouch
E. none of the above (A-D)

1646. Within each branchial arch, the mesenchyme gives rise to an aortic arch vessel and to: D

A. a muscle mass
B. a cartilaginous element
C. nerve cells of related cranial nerves
D. both A and B
E. all of the above (A-C)

1655. The upper cheek is derived from the: C

A. intermaxillary segment
B. frontonasal process
C. maxillary process
D. mandibular process
E. lateral nasal process

1656. The philtrum is derived from the: A

A. intermaxillary segment
B. frontonasal process
C. maxillary process
D. mandibular process
E. lateral nasal process

1657. The premaxilla (primary palate) is derived from the: A

A. intermaxillary segment
B. frontonasal process
C. maxillary process
D. mandibular process
E. lateral nasal process

1658. The forehead is derived from the: B

A. intermaxillary segment
B. frontonasal process
C. maxillary process
D. mandibular process
E. lateral nasal process

1659. The lower lip is derived from the: D

A. intermaxillary segment
B. frontonasal process
C. maxillary process
D. mandibular process
E. lateral nasal process

1660. The bridge of the nose is derived from the: B

A. intermaxillary segment
B. frontonasal process
C. maxillary process
D. mandibular process
E. lateral nasal process

1661. A patient is found to have glandular tissue situated in the tongue musculature just superior to the body of the hyoid bone. This tissue would most likely be related to the: D

A. superior parathyroid glands
B. inferior parathyroid glands
C. thymus
D. thyroid gland
E. none of the above (A-D)

1670. The thyroid gland: **D**

A. has the same embryonic origin as the parafollicular cells
B. is probably nonfunctional in the fetus
C. both A and B
D. neither A nor B

1671. The intermaxillary segment contributes to all of the following except the: **C**

A. philtrum of the upper lip
B. secondary palate
C. primary palate
D. incisor segment of the upper jaw

1672. Which statements are true: **B**

A. median cleft lip occurs only in rabbits
B. buccopharyngeal membrane ruptures at about 24 days of development
C. both A and B
D. neither A nor B

1673. The hard palate is formed from: **C**

A. lateral palatine process
B. medial nasal process
C. both A and B
D. neither A nor B

1674. What is the origin of the mucosa of the middle ear: **D**

A. neural ectoderm
B. surface ectoderm
C. mesoderm
D. endoderm
E. none of the above (A-D)

1675. What is the origin of the epithelium on outer surface of the ear drum: **B**

A. neural ectoderm
B. surface ectoderm
C. mesoderm
D. endoderm
E. none of the above (A-D)

1676. What is the origin of the cochlear duct: **B**

A. neural ectoderm
B. surface ectoderm
C. mesoderm
D. endoderm
E. none of the above (A-D)

1677. Identify the correct association: **A**

A. neural crest cells - facial processes
B. primary palate - palatine shelves of maxillary process
C. both A and B
D. neither A nor B

1687. A syndrome involving a lack of pharyngeal pouch III would result in incomplete or absent: A

A. parathyroids
B. thyroid
C. both A and B
D. neither A nor B

1688. Which are embryological characteristics of the parathyroid glands: A

A. derived from the endodermal germ layer
B. originates only from the 3rd pharyngeal pouch
C. both A and B
D. neither A nor B

1689. Identify the correct association: B

A. nasolacrimal groove - lateral nasal process and mandibular process
B. cleft lip - medial nasal process and maxillary process
C. both A and B
D. neither A nor B

1690. True statements concerning parathyroid gland development include: C

A. oxyphil cells do not differentiate until late childhood
B. the inferior parathyroid glands are endodermal derivatives from pharyngeal pouch III
C. both A and B
D. neither A nor B

1691. Many facial malformations are believed due to: B

A. a failure of the oral membrane to rupture
B. a failure of neural crest cells to migrate into the facial processes
C. a failure in growth of the head fold
D. an abnormal persistence of the pharyngeal clefts
E. none of the above (A-D)

1692. An individual with no thyroid gland at birth would exhibit the following symptoms: D

A. extremely low blood calcium levels
B. increased metabolic rate
C. both A and B
D. neither A nor B

1693. The epithelium and glands lining the lumen of the trachea and larynx are derived from foregut endoderm: A

A. true
B. false

1694. The following is true about the diaphragm except it: **D**

A. closes the pleuroperitoneal canals
B. receives its central tendon from septum transversum
C. when it possesses a posterolateral defect, usually has that defect on the left side
D. forms subsequent to the return of the midgut loop to the abdominopelvic cavity

1695. Most muscle-forming cells (myoblasts) giving rise to the musculature of the diaphragm are believed to be derived from mesenchymal cells that originate in the: **B**

A. septum transversum
B. cervical somites
C. thoracic somites
D. lumbar somites
E. lateral plate mesoderm

1696. Which of the following statements is not true concerning innervation of the developing diaphragm: **B**

A. the phrenic nerve passes to the diaphragm via the pleuropericardial membranes
B. the phrenic nerve forms during the eighth week as the diaphragm descends
C. marginal branches are supplied to the diaphragm by intercostal nerves
D. the sole motor nerve supply of the diaphragm is from the third, fourth, and fifth cervical segments of the spinal cord

1697. Which of the following statements is/are true about a congenital diaphragmatic hernia through a posterolateral defect of the diaphragm: **E**

A. it is the most common type of diaphragmatic hernia
B. the stomach, intestines and part of the liver may herniate into the thoracic cavity
C. it occurs more often on the left side than the right
D. the lungs may be compressed and hypoplastic
E. all of the above (A-D)

1698. An abnormal posterolateral diaphragmatic defect creating a hiatus is caused by improper development of the: **B**

A. septum transversum
B. pleuroperitoneal membrane
C. dorsal mesentery
D. both A and B
E. all of the above (A-C)

1699. The "cardiac jelly" layer of the embryonic heart can be found in the adult heart as: **C**

A. atrioventricular valves
B. membranous part of interventricular septum
C. both A and B
D. neither A nor B

1700. Epithelial cells of pulmonary alveoli are derived from: **A**

A. endoderm
B. mesoderm
C. ectoderm
D. more than one of the above

1701 The pleuropericardial membranes give rise to the fibrous pericardium of the adult heart. In the embryo, each of these membranes contain a: **C**

A. common cardinal vein
B. phrenic nerve
C. both A and B
D. neither A nor B

1710. The endocardial and myoepicardial layers of the primitive heart tube: B

A. do not contribute to any of the structures of the mature ventricles
B. are initially separated by a thick acellular, gelatinous material
C. both A and B
D. neither A nor B

171 Regarding the sinus venosus: D

A. the left horn is incorporated into the wall of the left atrium
B. the three pairs of tributaries which enter the sinus venosus are the vitelline, anterior and posterior cardinal veins
C. both A and B
D. neither A nor B

1712. An embryonic remnant does not exist in the adult for which of the following: A

A. foramen primum
B. ductus venosus
C. both A and B
D. neither A nor B

1713. Right common carotid artery is derived from the: C

A. right aortic arch 6
B. right aortic arch 2
C. right aortic arch 3
D. right aortic arch 4
E. aortic sac

1714. Brachiocephalic (innominate) artery is derived from the: E

A. right aortic arch 6
B. right aortic arch 2
C. right aortic arch 3
D. right aortic arch 4
E. aortic sac

.715. Right pulmonary artery is derived from the: A

A. right aortic arch 6
B. right aortic arch 2
C. right aortic arch 3
D. right aortic arch 4
E. aortic sac

1716. Right subclavian artery is derived from the: D

A. right aortic arch 6
B. right aortic arch 2
C. right aortic arch 3
D. right aortic arch 4
E. aortic sac

.717. Right gonadal vein is derived from the: B

A. right vitelline vein
B. right subcardinal vein
C. right anterior cardinal
D. right supracardinal vein
E. all of the above (A-D)

726. Inferior vena cava is associated with: **C**
A. subcardinal veins
B. supracardinal veins
C. both A and B
D. neither A nor B

727. Which does <u>not</u> contribute to a portion of the inferior vena cava: **A**
A. right precardinal vein
B. right subcardinal vein
C. right supracardinal vein
D. right vitelline vein

1728. Coarctation (congenital narrowing) of the aorta <u>most</u> often occurs near the: **C**
A. bifurcation into common iliac arteries
B. branching of the renal arteries
C. ductus arteriosus (ligamentum arteriosum)
D. brachiocephalic artery

1729. Coronary sinus are derived from the: **E**
A. anterior cardinal veins
B. posterior cardinal veins
C. subcardinal veins
D. supracardinal veins
E. none of the above (A-D)

1730. Common iliac veins are associated with: **D**
A. subcardinal veins
B. supracardinal veins
C. both A and B
D. neither A nor B

1731 Portion of the azygous vein is associated with: **B**
A. subcardinal veins
B. supracardinal veins
C. both A and B
D. neither A nor B

732. As the primitive atrium is divided into right and left atria: **A**
A. septum primum fuses with the endocardial cushions
B. septum secundum fuses with the endocardial cushions
C. both A and B
D. neither A nor B

733. The first pair of aortic arches form __?__ in the adult **C**
A. maxillary arteries
B. a contribution to the external carotid arteries
C. both A and B
D. neither A nor B

734. Left brachiocephalic vein is associated with: **D**
A. subcardinal veins
B. supracardinal veins
C. both A and B
D. neither A nor B

1743. The left sixth aortic arch gives rise to the: C

A. hemiazygos vein
B. coronary sinus
C. ligamentum arteriosum
D. ligamentum venosum
E. no remnants are found of this structure in the adult

1744. The left horn of sinus venosus gives rise to the: B

A. hemiazygos vein
B. coronary sinus
C. ligamentum arteriosum
D. ligamentum venosum
E. no remnants are found of this structure in the adult

.745. The proximal portion (between liver and heart) of left umbilical vein gives rise to the: E

A. hemiazygos vein
B. coronary sinus
C. ligamentum arteriosum
D. ligamentum venosum
E. no remnants are found of this structure in the adult

1746. The left supracardinal vein gives rise to the: A

A. hemiazygos vein
B. coronary sinus
C. ligamentum arteriosum
D. ligamentum venosum
E. no remnants are found of this structure in the adult

1747. The left fifth aortic arch gives rise to the: E

A. hemiazygos vein
B. coronary sinus
C. ligamentum arteriosum
D. ligamentum venosum
E. no remnants are found of this structure in the adult

1748. The "cardiac jelly" layer of the embryonic heart can be found in the adult heart as: D

A. the limbus of fossa ovalis
B. subepicardial connective tissue
C. both A and B
D. neither A nor B

.749. Which of the following "shunts" normally closes before birth: A

A. interventricular foramen
B. ductus arteriosus
C. ductus venosus
D. foramen ovale
E. all of the above (A-D)

1750. Which of the following embryonic veins participate in the formation of the inferior vena cava: E

A. right subcardinal
B. right supracardinal
C. right hepatic (from right vitelline)
D. subcardinal - supracardinal anastomosis
E. all of the above (A-D)

759. Which statement is not correct: D
A. septum primum fuses with the endocardial cushions
B. septum primum forms the valve of the foramen ovale
C. septum secundum does not form a complete partition between atria
D. foramen ovale always remains patent after birth
E. foramen secundum is a second opening beginning as small perforations in the septum primum

1760. Defects forming part of the tetralogy of Fallot include all of the following except: A
A. atrial septal defect
B. right ventricular hypertrophy
C. pulmonary stenosis
D. ventricular septal defect

1761. Vessels directly entering the sinus venosus sometime during development include: D
A. left umbilical vein
B. right vitelline vein
C. right anterior cardinal vein
D. both A and B
E. all of the above (A-C)

762. The pleuropericardial membranes give rise to the fibrous pericardium of the adult heart. In the embryo, each of these membranes contain a: D
A. pleural canal
B. developing lung
C. both A and B
D. neither A nor B

1763. Regarding the sinus venosus: C
A. the right horn is incorporated into the wall of the right atrium
B. blood entering the sinus venosus is mixed (oxygenated and deoxygenated)
C. both A and B
D. neither A nor B

764. The right 4th embryonic aortic arch: A
A. is a patent vessel in the adult
B. is a ligamentous cord in the adult
C. contributes both a patent vessel and ligamentous cord in the adult
D. no known remnant exists in the adult

1765. Which of the following embryonic structure/adult derivative pairs is correct: C
A. bulbus cordis/adult left ventricle
B. septum primum/limbus fossae ovalis
C. inferior portion of the right venous valve/valve of the coronary sinus (thebesian)
D. right horn of the sinus venosus/oblique vein of the left atrium
E. proximal left vitelline vein/inferior vena cava

1766. Choose the correct statement: E
A. the membranous ventricular septum is formed by contributions from the atrioventricular endocardial cushions and the muscular ventricular septum
B. prior to cephalocaudal folding of the embryo, the cardiogenic area lies ventral and cranial to the buccopharyngeal membrane
C. the aorticopulmonary septum is one of the first septae to form in the developing heart
D. the myoepicardial mantle is a gelatinous connective tissue separating the endocardium and the cardiac jelly
E. the right and left auricles are remnants of the primitive atrium

1775. Which of the following does not contribute to the viability of a preterm infant of 26-28 weeks gestation: **D**

A. development of sufficient terminal air sacs
B. development of an adequate pulmonary capillary bed
C. attaining an adequate body weight
D. production of surfactant by pathway I (choline incorporation pathway)
E. production of surfactant by pathway II (methyltransferase pathway)

1776. The pleuropericardial membranes contain: **B**

A. phrenic nerve and subcardinal vein
B. phrenic nerve and common cardinal vein
C. vagus nerve and common cardinal vein
D. phrenic nerve and pulmonary artery
E. phrenic nerve and pulmonary vein

.777. The endocardial and myoepicardial layers of the primitive heart tube: **A**

A. are both derived from splanchnic mesoderm
B. are brought into continuity by the rupture of the dorsal mesocardium
C. both A and B
D. neither A nor B

1778. Which of the following is an adult remnant of the sinus venosus: **C**

A. sinus venarum
B. coronary sinus
C. both A and B
D. neither A nor B

1779. The septum transversum contributes to all except one of the following: **A**

A. dorsal mesentery
B. liver capsule
C. ventral mesentery
D. diaphragm
E. fibrous pericardium

1780. An embryonic remnant does not exist in the adult for which of the following: **B**

A. septum primum
B. 5th right aortic arch
C. both A and B
D. neither A nor B

.781 The sinus venosus: **D**

A. contributes directly to shunting of blood away from the developing lungs
B. becomes the ligamentum venosum of the adult
C. both A and B
D. neither A nor B

1782. Which of the following is/are correct: **B**

A. the auricle of the right atrium is a derivative of the sinus venosus
B. the foramen ovale is formed by the free margins of the septum primum and the septum secundum
C. both A and B
D. neither A nor B

791. Which of the following statements is/are correct: **E**

A. the dorsal pancreatic rudiment develops from the wall of the foregut while the ventral pancreatic rudiment arises from the hepatic diverticulum
B. the ventral pancreatic rudiment duct becomes a portion of the definitive duct
C. a portion of the dorsal pancreatic rudiment duct becomes the accessory duct
D. the ventral pancreatic rudiment becomes apposed to the embryonic right surface of the dorsal pancreatic rudiment
E. all of the above (A-D)

792. Which of the following statements is/are correct: **B**

A. the dorsal pancreatic rudiment develops from the foregut while the ventral pancreatic rudiment arises from the midgut
B. the duct of the dorsal pancreatic rudiment becomes the major portion of the definitive duct
C. the ventral pancreatic rudiment becomes opposed to the embryonic left surface of the dorsal pancreatic rudiment
D. the ventral pancreatic duct rudiment becomes the accessory pancreatic duct
E. all of the above (A-D)

793. Which of the following statements is/are true: **A**

A. the epithelium of the vagina is derived from the endoderm of the urogenital sinus
B. during descent of the testes, the testes, follow a pathway formed by the gubernaculum and eventually come to lie anterior to the tunica vaginalis in the scrotum
C. both A and B
D. neither A nor B

1794. All of the following statements about development of the pancreas is/are true except: **D**

A. most of the pancreas develops from the dorsal pancreatic bud
B. part of the head is derived from the ventral pancreatic bud
C. the main pancreatic duct forms from the ducts of both pancreatic buds
D. the islets of Langerhans are derived from splanchnic mesenchyme
E. all of the above (A-D)

1795. The metanephric diverticulum: **D**

A. gives rise to convoluted tubules and loops of Henle
B. is derived from metanephric mesoderm
C. both A and B
D. neither A nor B

1796. Visceral pleural cells are derived from: **B**

A. endoderm
B. mesoderm
C. ectoderm
D. more than one of the above

1797. With respect to the developing gonads, which of the following is/are true: **B**

A. primary sex cords in the female give rise to the primordial follicles
B. development of the tunica albuginea is a characteristic and diagnostic feature of testicular development
C. both A and B
D. neither A nor B

1806. Indicate the correct statement: **A**

A. upon fusion of the developing pancreatic buds, the ventral bud forms the uncinate process and the inferior part of the head of the pancreas
B. the main pancreatic duct is formed by the distal portion of the duct of the ventral bud and the duct of the dorsal bud
C. the proximal portion of the ventral duct usually atrophies; however, it may persist as the accessory duct (of Santorini)
D. the islets of Langerhans are of mesothelial origin, appearing as separate entities from the acini, but assuming position between them
E. secretory activity can be observed in fetal acinar tissue throughout development, whereas insulin secretion from the islet cells begins in approximately the second month

1807. Which of the following statements are true: **C**

A. when the mesonephric kidney degenerates in the male, some of its tubules near the testis become the efferent ductules
B. during the indifferent stage, the paramesonephric ducts cross anterior to the mesonephric ducts and fuse in the midline to become the uterovaginal primordium
C. both A and B
D. neither A nor B

1808. Which of the following is/are correct: **D**

A. bulbourethral glands are mesodermal outgrowths from the membranous portion of the urethra
B. the seminal vesicle, ductus deferens and prostate are derivatives of the mesonephric duct
C. both A and B
D. neither A nor B

1809. Concerning the midgut loop: **B**

A. it uses the root of the dorsal mesentery as the axis for rotation
B. the 270° of total rotation of the midgut brings the cecum to lie in the upper right abdominal quadrant
C. both A and B
D. neither A nor B

1810. Hepatocytes (glandular cells of liver) are of which origin: **A**

A. endoderm
B. mesoderm
C. ectoderm
D. endoderm and mesoderm
E. endoderm and ectoderm

1811 Epithelium (functional cells) of renal nephron are of which origin: **B**

A. endoderm
B. mesoderm
C. ectoderm
D. endoderm and mesoderm
E. endoderm and ectoderm

1812. Epithelium (lining cells) of uterus and vagina are of which origin: **D**

A. endoderm
B. mesoderm
C. ectoderm
D. endoderm and mesoderm
E. endoderm and ectoderm

1821 The hepatic diverticulum (composed of endodermal cells) give rise to: **B**

A. Kupffer cells of the liver
B. epithelial lining of the intrahepatic biliary apparatus
C. both A and B
D. neither A nor B

1822. Lining of the peritoneal cavity is of: **B**

A. ectodermal origin
B. mesodermal origin
C. endodermal origin

1823. What is the origin of the uriniferous tubule: **C**

A. ureteric bud (metanephric diverticulum)
B. metanephric mass (blastema)
C. both A and B
D. neitherA nor B

1824. Suprarenal cortical cells are derived from: **B**

A. endoderm
B. mesoderm
C. ectoderm
D. more than one of the above

1825. Epithelium of the urinary bladder is of: **C**

A. ectodermal origin
B. mesodermal origin
C. endodermal origin

1826. Epithelium of the ureter is of: **B**

A. ectodermal origin
B. mesodermal origin
C. endodermal origin

1827. Intestinal epithelial cells are of: **C**

A. ectodermal origin
B. mesodermal origin
C. endodermal origin

1828. Hepatic endothelial and kupffer cells are of: **B**

A. ectodermal origin
B. mesodermal origin
C. endodermal origin

1829. The intraembryonic coelom: **C**

A. forms prior to the extraembryonic coelom
B. is initially two cavities which do not communicate
C. is continuous with the extraembryonic coelom along the yolk stalk by the second month
D. forms the thoracic and abdominal cavities
E. all of the above (A-D)

1838. In early childhood, the greater pelvis contains: **A**

A. the urinary bladder
B. the lower alimentary canal
C. the birth canal
D. all of the above (A-C)
E. none of the above (A-D)

1839. Concerning the midgut loop: **A**

A. its cranial limb forms most of the length of the small intestine
B. 190° of counterclockwise rotation occurs while the loop is herniated into the umbilicus
C. both A and B
D. neither A nor B

1840. The embryonic counterpart of the gubernaculum is the: **D**

A. perineal body
B. ejaculatory duct
C. appendix
D. ovarian ligament (round ligament of ovary)
E. seminal colliculus

1841 The embryonic counterpart of the urorectal septum is the: **A**

A. perineal body
B. ejaculatory duct
C. appendix
D. ovarian ligament (round ligament of ovary)
E. seminal colliculus

1842. The embryonic counterpart of the Mullerian tubercle is the: **E**

A. perineal body
B. ejaculatory duct
C. appendix
D. ovarian ligament (round ligament of ovary)
E. seminal colliculus

1843. The embryonic counterpart of the mesonephric duct is the: **B**

A. perineal body
B. ejaculatory duct
C. appendix
D. ovarian ligament (round ligament of ovary)
E. seminal colliculus

1844. The embryonic counterpart of the follicular cells of ovary is the: **B**

A. oogonium
B. primary sex cords
C. mesonephric tubule
D. paramesonephric ducts
E. tunica albuginea

1845. Which of the following statements are <u>true</u>: **B**

A. the greater vestibular glands (of Bartholin) are homologous to the prostatic gland in the male
B. during development of the external genitalia, growth of the male genital tubercle pulls the urogenital folds anteriorly until the folds eventually fuse
C. both A and B
D. neither A nor B

1853 Drainage of urine from the umbilicus of the neonate is due to a urachal fistula. This condition results from: B

A. umbilical hernia
B. persistent allantois
C. ectopica vesicae
D. ectopic ureter
E. ectopic urethra

1854 The primitive urogenital sinus may be divided into an upper (vesico-urethral) part and a lower pelvic (or phallic) part by the entrance of the: D

A. cloaca
B. allantois
C. metanephric duct
D. mesonephric duct
E. paramesonephric duct

1855 Which of the following statements is/are true: B

A. the urogenital sinus is lined by cells of mesodermal origin
B. the urorectal septum will descend to divide the cloaca into an anterior urogenital sinus (which gives rise to the urachus, bladder, and urethra) and a posterior anorectal canal
C. both A and B
D. neither A nor B

1856. The ileum is derived from the: D

A. cranial midgut
B. caudal midgut
C. hindgut
D. both A and B
E. all of the above (A-C)

1857. An imperforate hymen is caused by a: B

A. failure of rupture of the urogenital membrane
B. failure of complete canalization of the vaginal plate - urogenital sinus junction
C. failure of the uterovaginal primordium to contact the urogenital sinus
D. both A and B
E. all of the above (A-C)

1858. Renal agenesis results in: B

A. polyhydramnios (more than usual amount of amniotic fluid)
B. oligohydramnios (less than usual amount of amniotic fluid)
C. both A and B
D. neither A nor B

1859. Extrophy of the urinary bladder results in: D

A. polyhydramnios (more than usual amount of amniotic fluid)
B. oligohydramnios (less than usual amount of amniotic fluid)
C. both A and B
D. neither A nor B

1860. The nephron portions of the uriniferous tubules of the adult kidneys are derived from the: E

A. mesonephric duct
B. mesonephric mesoderm
C. nephrogenic mesoderm in the embryonic lumbar region
D. all of the above (A-C)
E. none of the above (A-D)

1869. Bile duct epithelium is of: C

A. ectodermal origin
B. mesodermal origin
C. endodermal origin

1870. Which of the following is not true: A

A. the primitive cloaca develops from the intermediate mesoderm of the nephrogenic cord
B. genetic sex is determined at fertilization but there is no morphological indication of sex until several weeks later
C. ascent of the kidney helps to reverse the original positions of the mesonephric and ureteric buds so that the ureteric buds (ureters) come to open high in the urogenital sinus and the mesonephric ducts open at a lower position
D. the kidney and reproductive organs develop in close association mainly on the urogenital ridges

1871 Which of the following is/are true concerning the developing male and female duct systems: C

A. the cranial end of the paramesonephric duct in the female opens into the coelomic (peritoneal) cavity
B. the seminal vesicle forms from an outpocketing of the mesonephric duct, whereas the prostate and bulbourethral glands develop as outgrowths of the urethra
C. both A and B
D. neither A nor B

1872. Which of the following is/are true: E

A. the paramesonephric duct develops from invaginations of coelomic epithelium along the urogenital ridges
B. during development of the external genitalia, growth of the male genital tubercle pulls the urogenital folds anteriorly until the folds eventually fuse
C. paired sinovaginal bulbs grow up from the urogenital sinus towards the uterovaginal primordium to form the vaginal plate
D. during descent of the testes, the testes follow a pathway formed by the gubernaculum and eventually come to lie in the scrotum along with the tunica vaginalis
E. all of the above (A-D)

1873. Which of the following is not of mesodermal origin: C

A. mesonephric duct
B. testes
C. urinary bladder
D. uterus

1874. The hepatic diverticulum (composed of endodermal cells) give rise to: A

A. hepatocytes of the liver
B. hemopoietic tissue of the liver
C. both A and B
D. neither A nor B

1875. Epithelial cells of the renal pelvis are derived from: B

A. endoderm
B. mesoderm
C. ectoderm
D. more than one of the above

1884. Which of the following may have exstrophy of the bladder: E

A. a genetically normal male neonate (X,Y)
B. a genetically normal female neonate (X,X)
C. a "Turner's syndrome" female (X,-)
D. both A and B
E. all of the above (A-C)

1885. Which of the following may have hypospadias: A

A. a genetically normal male neonate (X,Y)
B. a genetically normal female neonate (X,X)
C. a "Turner's syndrome" female (X,-)
D. both A and B
E. all of the above (A-C)

1886. Primary innervation via the pudendal nerve include: D

A. structures derived from ectoderm surrounding the cloacal membrane
B. structures derived from mesoderm (mesenchyme) surrounding the cloacal membrane
C. structures derived from endoderm immediately internal to the cloacal membrane
D. both A and B
E. all of the above (A-C)

1887. Tracheoesophageal fistula results from: C

A. failure of the septum to form (grow or increase in size) properly
B. failure of the septum or dividing structure to degenerate
C. improper canalization of the epithelial plug of tissue

1888. Which of the following contributes to formation of the anal canal (consider all relevant structures): E

A. structures derived from ectoderm surrounding the cloacal membrane
B. structures derived from mesoderm (mesenchyme) surrounding the cloacal membrane
C. structures derived from endoderm immediately internal to the cloacal membrane
D. both A and B
E. all of the above (A-C)

1889. Which of the following is lined with endothelium: B

A. structures derived from ectoderm surrounding the cloacal membrane
B. structures derived from mesoderm (mesenchyme) surrounding the cloacal membrane
C. structures derived from endoderm immediately internal to the cloacal membrane
D. both A and B
E. all of the above (A-C)

1890. The last portion of the midgut to return to the abdominal cavity is the: C

A. jejunum
B. ileum
C. cecum
D. both A and B
E. all of the above (A-C)

1891 Meckel's ileal diverticulum results from: A

A. lack of normal obliteration process
B. failure to complete migration of the urorectal septum
C. failure of rupture of the cloacal membrane or subdivisions
D. genital (urethral) fold fusion defect
E. none of the above (A-D)

1900. Collecting ducts of the permanent kidney develop from the: A

A. uteric bud
B. metanephric blastema
C. mesonephric duct
D. splanchnic mesoderm
E. mesonephric tubules

1901. A urachal fistula represents a remnant of the B

A. cloaca
B. allantois
C. urogenital sinus
D. hindgut
E. mesonephric duct

1902. Which of the following structures does <u>not</u> communicate with the cloaca: B

A. hindgut
B. yolk stalk
C. allantois
D. mesonephric duct

1903. Rotation of the primitive intestinal loop: B

A. occurs about the celiac axis
B. occurs in a clockwise direction and accounts for approximately 270°
C. is completed prior to umbilical herniation of the intestinal loops
D. occurs prior to elongation of the intestinal loop
E. involves only the jejunum and ileum

1904. Which of the following are <u>true</u> regarding development of the primitive gut: E

A. a portion of the yolk sac is incorporated into the embryonic disc to form the primitive gut
B. the lining endoderm of the primitive gut forms the epithelium of the digestive tract
C. the celiac artery supplies the foregut
D. the junction of the foregut and midgut lies just distal to the opening of the bile duct in the second part of the duodenum
E. all of the above (A-D)

1905. In an infant, the bladder is partly within the abdomen and partly within the "true" pelvis (pelvis minor): A

A. true
B. false

1906. External and internal genitalia within normal range of variation indicate: E

A. a genetically normal male neonate (X,Y)
B. a genetically normal female neonate (X,X)
C. a "Turner's syndrome" female (X,-)
D. both A and B
E. all of the above (A-C)

1907 All of the following statements are true about the trigone of the bladder <u>except</u> it is: D

A. originally lined by mesoderm
B. located on the posterior wall of the bladder
C. formed by incorporation of the mesonephric ducts and ureters into the urogenital sinus
D. derived from the urogenital sinus

1916. Structures derived from umbilical vein (left) include: C

A. ligamentum arteriosum
B. ligamentum venosum
C. ligamentum teres hepatis
D. all of the above (A-C)
E. none of the above (A-D)

1917. Which of the following statements are <u>true</u> concerning the embryonic development of the adrenal gland: A

A. there is definitive zonation of the adrenal cortex at birth
B. the adrenal cortex is derived from mesoderm, whereas the medulla is derived from endoderm (chromaffin cells from neural crest)
C. both A and B
D. neither A nor B

1918. What is the site of the junction of the cranial and caudal limbs of the midgut loop: B

A. jejunum
B. ileum
C. cecum
D. both A and B
E. all of the above (A-C)

1919. Regarding pattern formation: **B**

A. cells of upper and lower limb mesenchyme are equivalent; they have the same positional values
B. full specification of position is not supplied all at once, but is built up from a series of items of positional information registered in the cell's "memory" at different times; i.e., positional information is supplied in quantal units
C. both A and B
D. neither A nor B

1920. Source(s) of muscular tissue of body include: **C**

A. ectoderm
B. endoderm
C. mesoderm
D. ectoderm and endoderm
E. ectoderm, mesoderm, and endoderm

1921 The zone of polarizing activity (ZPA): **C**

A. governs the "handedness" of the embryo
B. is a region of posterior limb mesoderm
C. both A and B
D. neither A nor B

1922. Paraxial (somite) mesoderm gives rise to: **D**

A. muscles of mastication
B. muscles in the stomach
C. both A and B
D. neither A nor B

1923. In limb morphogenesis: **E**

A. mesodermal and ectodermal interaction is reciprocal
B. the influences between mesoderm and ectoderm act across and may be mediated by the extracellular matrix
C. a mesodermal maintenance factor acts on the apical ectodermal ridge to keep it thick and functional
D. mesoderm is instructive on ectoderm
E. all of the above (A-D)

1924 Spina bifida is a failure of fusion between the: **C**

A. left and right halves of the vertebral centrum
B. pedicle and centrum of the vertebra
C. left and right laminae of the vertebra
D. both A and B
E. all of the above (A-C)

1925. Which of the following is/are derived from the mesodermal germ layer: **D**

A. deep back muscles
B. bones of appendicular skeleton
C. nerve cells
D. both A and B
E. all of the above (A-C)

1934. Concerning the model of limb morphogenesis in the amphibian, Xenopus: E

A. degradation of collagen allows mesenchymal filopodia to contact the basal lamina of the epithelium
B. contact between the mesenchymal cell surface and the epithelial basal lamina may mediate intercellular signals having morphogenetic significance; i.e., positional information
C. development of low resistance pathways may functionally integrate the mesenchyme and coordinate cell division and changes in three dimensional positions
D. during development, epithelial desmosomes remain stable
E. all of the above (A-D)

1935. In limb rotation, all of the following is true except: B

A. after rotation, the extensor muscles of the lower limb will come to lie ventrally
B. prior to rotation, the knees and elbows are directed ventrally
C. as limbs rotate, neuronal relationships are maintained
D. a 90° medial rotation of the lower limb brings the preaxial border medial

1936. Which of the following muscle groups is derived from the posterior (dorsal) premuscle mass of the respective limb: A

A. extensor compartment of the forearm
B. adductor compartment of the thigh
C. deep posterior compartment of the leg
D. both A and B
E. none of the above (A-D)

1937. In limb development, the: B

A. the upper limb bud develops primarily in the thoracic region
B. the apical ectoderm ridge exerts a major inductive influence on the underlying mesenchyme
C. mesodermal components of the limb are primarily derived from the dermatomyotomes of somites
D. both A and B
E. none of the above (A-D)

1938. The flexor digitorum profundus is derived from the: A

A. anterior premuscle mass of the forearm
B. posterior premuscle mass of the forearm
C. myotomes related to cervical somites 6, 7, and 8
D. both A and B
E. all of the above (A-C)

1939. All phalanges and the first metacarpal usually have only one distal epiphysis: B

A. true
B. false

1940. The ulna: E

A. is subject to parry fractures
B. has its major growth in its distal portion
C. is on the little finger side of the hand
D. both A and C
E. all of the above (A-C)

1941. Which of the following is formed from portions of two adjacent sclerotomes: A

A. vertebral centrum
B. intervertebral disc (anulus fibrosus)
C. both A and B
D. neither A nor B

1951. The seventh cervical vertebra is derived from tissue previously found in: D

A. cervical somite 6 only
B. cervical somite 7 only
C. cervical somite 8 only
D. cervical somites 6 and 7
E. cervical somites 7 and 8

1952. The neonatal skeleton lacks a bony: E

A. carpus
B. patella
C. proximal femoral epiphysis
D. both A and B
E. all of the above (A-C)

1953. The glands of the body develop from: E

A. ectoderm only
B. mesoderm only
C. endoderm only
D. both B and C
E. all of the above (A-C)

1954 The events leading to the formation of bone by the intramembranous method include examples of: E

A. growth
B. cell aggregation
C. cell differentiation
D. both A and B
E. all of the above (A-C)

1955. What is the origin of the ciliary muscle: C

A. neural ectoderm
B. surface ectoderm
C. mesoderm
D. endoderm
E. none of the above (A-D)

1956. Source(s) of connective tissue of body (other than head) include: C

A. ectoderm
B. endoderm
C. mesoderm
D. ectoderm and endoderm
E. ectoderm, mesoderm, and endoderm

1957. Source(s) of epithelia include: E

A. ectoderm
B. endoderm
C. mesoderm
D. ectoderm and endoderm
E. ectoderm, mesoderm, and endoderm

1958. Natural healing, repair or restructuring is <u>not</u> likely to occur in the ___?___ associated with an erupted tooth: E

A. alveolar bone
B. periodontal ligament
C. cellular cementum
D. dentin
E. enamel

1961. Neural crest cells contribute to: C

A. enamel
B. parotid gland
C. dental pulp
D. none of the above (A-C)

1962. As the nerve fibers composing the internal capsule enter and leave the cerebrum, they separate the embryonic thalamus from the embryonic corpus striatum: B

A. true
B. false

1963. During histogenesis of the cerebral cortex, all of the cell division occurs within the ventricular zone: B

A. true
B. false

1964. The following is true about the pouch of Rathke except it: B

A. gives rise to the pars distalis
B. gives rise to pars nervosa
C. is an outgrowth of embryonic oral cavity
D. gives rise to the pars intermedia

1965. What is the origin of the pigmented layer of the retina: A

A. neural ectoderm
B. surface ectoderm
C. mesoderm
D. endoderm
E. none of the above (A-D)

1966. What is the origin of the lens: B

A. neural ectoderm
B. surface ectoderm
C. mesoderm
D. endoderm
E. none of the above (A-D)

1967. Which of the following contains cell bodies of motor neurons: B

A. alar plate of the developing spinal cord
B. basal plate of the developing spinal cord
C. both A and B
D. neither A nor B

1968. Anterior pituitary are derived from: C

A. endoderm
B. mesoderm
C. ectoderm
D. more than one of the above

1969. Which of the following is composed of tissue derived from ectoderm and mesoderm: D

A. eyelids
B. cornea
C. lens
D. both A and B
E. all of the above (A-C)

1978. Dorsal root ganglion neurons arise from the: **B**

A. neural tube (neuroepithelium)
B. neural crest
C. both A and B
D. neither A nor B

1979. Neurons with cell bodies in the alar plate arise from the: **A**

A. neural tube (neuroepithelium)
B. neural crest
C. both A and B
D. neither A nor B

1980. Microglia cells arise from the: **D**

A. neural tube (neuroepithelium)
B. neural crest
C. both A and B
D. neither A nor B

1981 The origin of alpha and gamma motor neurons is the: **B**

A. alar plate of the spinal cord
B. basalar plate of the spinal cord mantle region
C. both A and B
D. neither A nor B

1982. Origin of neurons whose axons form the spinothalamic tract include the: **A**

A. alar plate of the spinal cord
B. basalar plate of the spinal cord mantle region
C. both A and B
D. neither A nor B

1983. Origin of neurons whose axons ascend in the dorsal funiculus to terminate in the nucleus gracilis include the: **D**

A. alar plate of the spinal cord
B. basalar plate of the spinal cord mantle region
C. both A and B
D. neither A nor B

1984. Autonomic (sympathetic and parasympathetic) neurons are: **C**

A. derived from neuroepithelium of the neural tube
B. derived from the neural crest
C. both A and B
D. neither A nor B

1985. The CNS is derived from what specific primitive neuroectodermal structure: **A**

A. neural tube
B. neural crest
C. mesodermal swellings
D. ependymal cells
E. both B and C

1994. Hormone produced by tissue derived from embryonic neural ectoderm include: **B**

A. calcitonin
B. epinephrine
C. both A and B
D. neither A nor B

1995. Which of the following statements are incorrect about the primitive groove: **E**

A. is located in the caudal portion of the embryonic disc
B. is caused by the migration of epiblastic cells
C. is oriented along three midsagittal axis of the embryo
D. is the site of origin for most of the intraembryonic mesoderm
E. is induced by the notochord

1996. The general manifestations of basal ganglia disorders include: **E**

A. involuntary movements
B. slowness in initiating voluntary movements
C. change in muscle tone
D. impairment in mental ability
E. all of the above (A-D)

1997. Schwann cells, satellite cells, neurons in sympathetic ganglia and neurons in dorsal root ganglia are all derived from: **B**

A. neural tube
B. neural crest
C. ependymal cells
D. oligodendroglia
E. astrocytes

1998. Nervous tissue is derived mainly from which of the following germ layers: **A**

A. neural ectoderm
B. mesoderm
C. endoderm
D. all of the above (A-C)
E. none of the above (A-D)

1999. The branchial motor column is composed of those cranial nerve nuclei which are derived embryonically from the branchial arches. These include all of the following except: **C**

A. facial motor nucleus
B. nucleus ambiguus
C. hypoglossal nucleus
D. trigeminal motor nucleus
E. spinal accessory nucleus

2000. Indicate the correct statement: **B**

A. the primary vesicles of the neural tube are myelencephalon, midbrain, and rhomboencephalon
B. the metencephalon corresponds to the pons and cerebellum of the mature brain
C. the third ventricle is found in the lateral portion of the telencephalon
D. the diencephalon originates in the medulla oblongata
E. the mesencephalon contains the thalamus, the epithalamus, subthalamus, and the hypothalamus