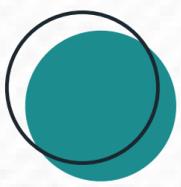




Musculoskeletal System Midterm Exam 024



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1. **(Physiology)** Which of the following events does NOT occur at all in skeletal muscle during excitation-contraction coupling?

- A) Activation of voltage gated K^+ channels at the sarcolemma
- B) Depolarization of the sarcoplasmic reticulum
- C) Activation of voltage gated Na^+ channels at the sarcolemma
- D) Action potential at T tubules
- E) Binding of Ca^{++} to troponin C

ANSWER: B

2. **(Physiology)** Which of the following is paired incorrectly?

- A) Treppe effect – Frequency summation
- B) Rigor mortis: decreased ATP in the sarcoplasm.
- C) T tubules: transmission of action potentials
- D) Tetanisation - Frequency summation

ANSWER: A

3. **(Physiology)** What is correct about the absolute refractory period of an action potential?

- A) Is during the after hyperpolarization wave
- B) Refers to the membrane potential at resting state
- C) Coincides with the firing stage of an action potential
- D) Coincides (at the same time) with the lowest activity of K^+ channels
- E) Is mostly when Na^+ channels are closed and not capable for opening

ANSWER: C

4. **(Physiology)** Slow muscles are depending MOST for their energetics during their activity?

- A) Oxidative phosphorylation.
- B) Creatine phosphate reserves.
- C) Glycolysis.
- D) ATP reserves.
- E) Adenylate cyclase

ANSWER: A



Midterm - MSS



5. **(Physiology)** Which of the followings is involved in skeletal muscle cells contractile mechanisms?

- A) Activation of voltage gated Ca^{++} channels at the sarcolemma
- B) Phosphorylation of myosin head
- C) Activation of phospholipase C
- D) Interaction of actin and myosin
- E) Activation of Ca^{+2} chemical gated channel

ANSWER: B

6. **(Microbiology)** A patient presents with a maculopapular rash that started on the trunk and then spread to the upper and lower extremities, including the palms and soles. He reports that two months ago he noticed a painless genital ulcer that resolved on its own. What is the most likely stage of this disease?

- A) Primary syphilis
- B) Secondary syphilis
- C) Tertiary syphilis

ANSWER: B

7. **(Microbiology)** Scabies is caused by:

- A) Lice
- B) Mites
- C) Protozoa
- D) Helminths
- E) Bedbugs

ANSWER: B

8. **(Microbiology)** Which of the following statements about skin infections is correct?

- A) Erythrasma is caused by *Corynebacterium* and fluoresces coral-red under Wood lamp.
- B) Black piedra is a nodular infection of the hair shaft caused by *Trichosporon*
- C) Perlèche are fissures occur at angles of the mouth caused by filamentous fungus

ANSWER: A



Midterm - MSS



9. **(Microbiology)** A patient presents with a skin infection characterized by poorly defined, spreading redness, but no necrosis. Which of the following is the most likely diagnosis?

- A) Necrotizing fasciitis
- B) Erysipelas
- C) Cellulitis
- D) Gas gangrene

ANSWER: C

10. **(Microbiology)** A child presents with fever, cough, coryza, conjunctivitis (the 3 Cs), and small blue-white spots on the buccal mucosa. What is the most likely diagnosis?

- A) Rubella
- B) Rubeola
- C) Scarlet fever
- D) Erythema infectiosum

ANSWER: B

11. **(Pathology)** A child presents with recurrent fractures after minor trauma. On examination he has blue sclera. Genetic analysis reveals a mutation affecting the synthesis of type I collagen. What is the most likely diagnosis?

- A) Osteoporosis
- B) Osteoid osteoma
- C) Osteoblastoma
- D) Osteogenesis imperfecta

ANSWER: D

12. **(Pathology)** A histological section from a bone tumor shows small round blue cells. Which of the following genetic mutation is most characteristic of this tumor?

- A) RB1 inactivation
- B) FGFR3 translocation
- C) t(11;22) EWSR1-FLI1 translocation
- D) P53 inactivation

ANSWER: C



Midterm - MSS



13. **(Pathology)** A child falls while playing and presents with a fracture where the bone bends and breaks on one side while the other side remains intact. What type of fracture is this?

- A) Comminuted fracture
- B) Displaced fracture
- C) Greenstick fracture
- D) Spiral fracture

ANSWER: C

14. **(Pathology)** A 70-year-old postmenopausal woman presents with back pain. Imaging shows vertebral compression fractures. Bone mineral density measurement reveals a T-score of -2.8 . What is the underlying pathophysiology of this condition?

- A) Defective mineralization of bone matrix
- B) Normal mineralization with decreased bone mass
- C) Increased osteoblastic activity
- D) Excess deposition of osteoid

ANSWER: B

15. **(Pathology)** A patient presents with knee pain that is significantly relieved after taking NSAIDs. What is the most likely diagnosis?

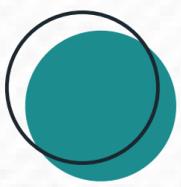
- A) Osteosarcoma
- B) Osteoid osteoma
- C) Chondrosarcoma
- D) Giant cell tumor

ANSWER: B

16. **(Pathology)** A patient presents with high serum alkaline phosphatase, normal calcium and phosphate levels, and radiographs of the skull show both lytic and sclerotic areas. Which of the following best explains the underlying pathology?

- A) Increased osteoclast activity followed by disorganized osteoblast activity
- B) Increased parathyroid hormone secretion causing bone resorption
- C) Decreased osteoclast activity with normal osteoblast activity
- D) Vitamin D deficiency causing impaired bone mineralization
- E) Decreased calcium resorption leading to hypercalcemia

ANSWER: A



Midterm - MSS



17. **(Pathology)** A newborn presents with relatively short limbs, frontal bossing, and normal parents. Genetic testing reveals a mutation in the FGFR3 gene. What is the most likely diagnosis?

- A) Achondroplasia
- B) Osteogenesis imperfecta
- C) Thanatophoric dysplasia
- D) Rickets

ANSWER: A

18. **(Histology)** Which of the following statements about skin appendages is correct?

- A) The inner root sheath is continuous with epidermis
- B) Eccrine sweat glands secrete their product into sebaceous glands
- C) Melanocytes in the hair matrix produce the pigment (melanin) of the hair
- D) Free nerve endings are encapsulated and detect temperature and pain
- E) Meissner's corpuscles are responsible for deep touch and pain sensation

ANSWER: C

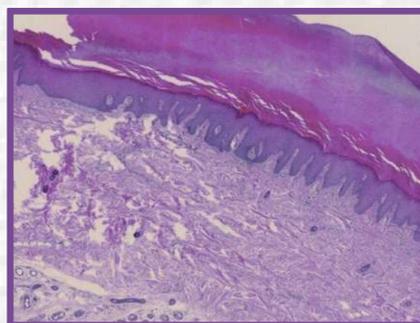
19. **(Histology)** Which of the following features distinguishes thick skin from thin skin?

- A) Thicker dermis
- B) Prominent stratum lucidum
- C) Presence of dermal papillae
- D) Presence of sweat glands

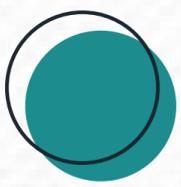
ANSWER: B

20. **(Histology Lab)** In which of the following locations is this type of tissue most likely found?

- A) Lips
- B) Palm
- C) Eyelid
- D) Scalp
- E) Back



ANSWER: B

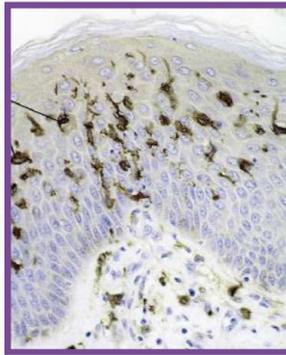


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21. **(Histology Lab)** Which of the following cells is most likely shown in the image?

- A) Merkel cell
- B) Melanocyte
- C) Keratinocyte
- D) Langerhans cell



ANSWER: D

22. **(Anatomy UL Lab)** What is its primary action of this muscle?

- A) Extension of the forearm
- B) Flexion of the forearm
- C) Flexion of the arm
- D) Extension of the arm



ANSWER: B

23. **(Anatomy UL Lab)** What is the name of this muscle?

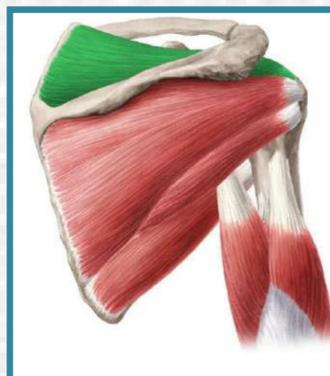
- A) Extensor digitorum
- B) Flexor digitorum superficialis
- C) Extensor carpi ulnaris
- D) Palmaris longus



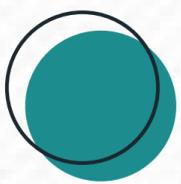
ANSWER: A

24. **(Anatomy UL Lab)** Which nerve innervates this muscle?

- A) Axillary nerve
- B) Suprascapular nerve
- C) Thoracodorsal nerve
- D) Subscapular nerve



ANSWER: B



Midterm - MSS



25. (Anatomy LL Lab) What is the name of this muscle?

- A) Adductor longus
- B) Adductor brevis
- C) Adductor magnus
- D) Gracilis



ANSWER: A

26. (Anatomy LL Lab) What is the name of this muscle?

- A) Biceps femoris
- B) Semitendinosus
- C) Semimembranosus
- D) Sartorius



ANSWER: A

27. (Anatomy LL Lab) What is the name of the green nerve?

- A) Tibial nerve
- B) Common fibular (peroneal) nerve
- C) Sciatic nerve
- D) Popliteal artery
- E) Popliteal vein



ANSWER: A

28. (Anatomy LL) Which muscle is one of the first layer muscles of the foot?

- A) Adductor hallucis
- B) Flexor hallucis longus
- C) Abductor hallucis
- D) Lumbricals

ANSWER: C



Midterm - MSS



29. (Anatomy LL) Which of the following is a branch of the femoral artery?

- A) Obturator artery
- B) Inferior epigastric artery
- C) Profunda femoris artery
- D) Superior gluteal artery
- E) Dorsalis pedis artery

ANSWER: C

30. (Anatomy LL) What lies on the medial side of the femoral sheath?

- A) Femoral artery
- B) Femoral nerve
- C) Femoral vein
- D) Femoral canal

ANSWER: D

31. (Anatomy LL) A patient is asked to stand on his left leg. The examiner notices that the pelvis tilts downward on the right side. Injury to which nerve is the most likely cause?

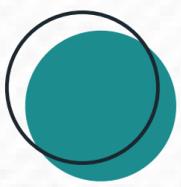
- A) Left inferior gluteal nerve
- B) Left superior gluteal nerve
- C) Right superior gluteal nerve
- D) Right inferior gluteal nerve
- E) Femoral nerve

ANSWER: B

32. (Anatomy LL) Which nerves innervate the adductor magnus muscle?

- A) Obturator nerve
- B) Tibial nerve
- C) Femoral nerve
- D) Obturator nerve and sciatic

ANSWER: D



Midterm - MSS



33. (Anatomy LL) Which movement is responsible for the “unlocking” of the knee?

- A) Lateral rotation of tibia
- B) Medial rotation of tibia
- C) Medial rotation of femur
- D) Extension of femur
- E) Abduction of tibia

ANSWER: B

34. (Anatomy LL) The anterior cruciate ligament (ACL) prevents displacement of tibia.

- A) Posterior
- B) Anterior
- C) Medial
- D) Lateral
- E) Side to Side

ANSWER: B

35. (Anatomy LL) What forms the anterolateral border of the adductor canal?

- A) Sartorius muscle
- B) Vastus medialis muscle
- C) Adductor longus muscle
- D) Adductor magnus muscle
- E) Rectus femoris muscle

ANSWER: B

36. (Anatomy LL) Which of the following muscles is not supplied by the sciatic nerve?

- A) Semitendinosus
- B) Semimembranosus
- C) Long head of biceps femoris
- D) Short head of biceps femoris

ANSWER: D



Midterm - MSS



37. (Anatomy LL) A person has an injury in his femoral nerve. Which of the following functions will be impaired?

- A) Extension of knee joint
- B) Extension of hip joint
- C) Flexion of knee joint

ANSWER: A

38. (Anatomy LL) A fracture in the neck of fibula will cause an injury in which nerve?

- A) Common Fibular nerve
- B) Femoral nerve
- C) Sciatic nerve

ANSWER: A

39. (Anatomy UL) Which nerve supplies the muscle that inserts into the floor of the bicipital groove?

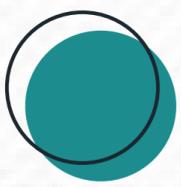
- A) Upper subscapular nerve
- B) Axillary nerve
- C) Thoracodorsal nerve
- D) Suprascapular nerve

ANSWER: C

40. (Anatomy UL) Someone has an injury at the quadrangular space. Which nerve is most likely affected?

- A) Radial nerve
- B) Musculocutaneous nerve
- C) Axillary nerve
- D) Suprascapular nerve

ANSWER: C



Midterm - MSS



41. (Anatomy UL) Which artery passes posterior to the medial epicondyle of the humerus?

- A) Profunda artery
- B) Ascending artery
- C) Medial artery
- D) Radial artery
- E) Superior ulnar collateral artery

ANSWER: E

42. (Anatomy UL) Which of the following pairs of nerve injury and clinical sign/deformity is incorrect (mis-match)?

- A) Median nerve injury → Complete claw hand
- B) Radial nerve injury → Wrist drop
- C) Upper brachial plexus injury → police man's tip position
- D) Ulnar nerve injury → Partial claw hand

ANSWER: A

43. (Anatomy UL) Which of the following nerves supplies the muscle that originates from the coracoid process of the scapula?

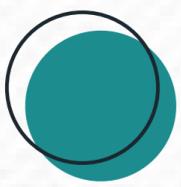
- A) Axillary nerve
- B) Musculocutaneous nerve
- C) Suprascapular nerve
- D) Thoracodorsal nerve
- E) Long thoracic nerve

ANSWER: B

44. (Anatomy UL) A 45-year-old woman underwent a breast mastectomy. After the surgery, she complains that she is unable to raise her arm above her head to reach cupboard. Which of the following findings is most likely present?

- A) Loss of shoulder abduction from 15–90°
- B) Weak elbow flexion
- C) Winging of the scapula
- D) Loss of forearm supination

ANSWER: C



Midterm - MSS



45. **(Anatomy UL)** A patient presents with weakness of thumb abduction and opposition. Sensation over the lateral three and a half fingers is also decreased. Which of the following is the most likely nerve injury?

- A) Median nerve cut above the wrist
- B) Median nerve compression in carpal tunnel syndrome
- C) Ulnar nerve injury at the elbow
- D) Ulnar nerve compression in Guyon's canal
- E) Radial nerve injury in the forearm

ANSWER: B

46. **(Anatomy UL)** Which of the following muscle–function pairs is mismatched?

- A) Biceps brachii — supination of the flexed forearm
- B) Brachioradialis — supination at mid-prone position
- C) Dorsal interossei — adduction of the middle finger
- D) Biceps femoris — flexion of the leg at the knee

ANSWER: C

47. **(Anatomy UL)** A patient presents with pus in the pulp of the finger. Which of the following structures is most likely to develop necrosis?

- A) Tip of the distal phalanx
- B) Distal three quadrants of the intermediate phalanx
- C) Lower quadrant of the intermediate phalanx
- D) Base of the distal phalanx

ANSWER: A

48. **(Anatomy UL)** Which ligament prevents upward displacement of the humerus?

- A) Acromioclavicular ligament
- B) Transverse humeral
- C) Glenohumeral
- D) Coracoacromial arch

ANSWER: D



Midterm - MSS



49. (Anatomy UL) Which of the following matching is wrong?

- A) Spinal accessory nerve → Trapezius
- B) Thoracodorsal nerve → Latissimus dorsi
- C) Superior subscapular nerve → Supraspinatus

ANSWER: C

50. (Anatomy UL) A person has an injured anterior lymph nodes, he will have a problem in which part of his body?

- A) Apical part of breast
- B) Lateral part of breast
- C) Thumb
- D) Digiti minimi

ANSWER: B



جينوم

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Version	Page No and place of error	Before Correction	After Correction

رسالة من فريق جينوم

كان من دعاء النبي ﷺ: "اللهم آت نفسي تقواها، وزكِّها أنت خيرٌ من زكَّها، أنت وليُّها ومولاها، اللهم إني أعوذ بك من علمٍ لا ينفع، ومن قلبٍ لا يخشع، ومن نفسٍ لا تشبع، ومن دعوةٍ لا يُستجاب لها"

“خيرُ الناسِ أ نفعهم للناسِ”