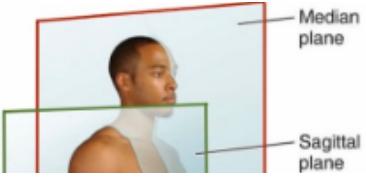
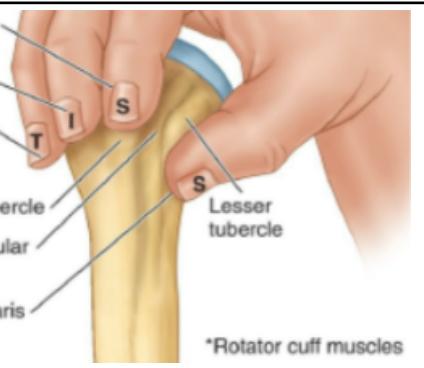


Question	Choices	Answer & Rationale
1. What cell organelle has an inner membrane forming folds to significantly increase its surface area for oxidation reactions?	A. Lysosome B. Proteasome C. Mitochondrion D. Smooth Endoplasmic Reticulum	C Bounded only by single layer of membrane Bounded only by single layer of membrane Only the mitochondrion among the choices has an inner membrane forming cristae (folds) Bounded only by single layer of membrane
2. At which phase of the cell cycle is the replicated DNA checked for damage before entering mitosis?	A. S B. G1 C. G0 D. G2	D The cell cycle has 2 successive divisions: Interphase and Cell division. Interphase has 3 phases: <ul style="list-style-type: none">• G1 - cell gathers nutrients and synthesizes RNA and proteins necessary for DNA replication; checkpoint before S phase• S - DNA synthesis and chromosome replication; checkpoint before G2 phase• G2 - cell growth & reorganization of cytoplasm; checkpoint before mitosis/cell division A cell is in G0 phase when it leaves the cycle & begins terminal differentiation
3. Which of the following cellular components is the site of ribosomal RNA synthesis?	A. Rough Endoplasmic Reticulum B. Nucleolus C. Centrosome D. Mitochondrion	B Ribosomes attached to the membranes of RER contains RNA but do NOT synthesize RNA. Do NOT synthesize rRNA Do NOT synthesize rRNA
4. Transposition of DNA strands between two different chromosomes occurs during which of the following phases of cell division?	A. Anaphase I B. Prophase II C. Anaphase II D. Prophase I	D The process of transposition of DNA stands between two different chromosomes within a cell is called crossing-over. Crossing-over happens in meiosis wherein there are 2 successive cell divisions called meiosis I and meiosis II. Both meiosis I and II follow the four phases of cell division: prophase, metaphase, anaphase and telophase. There are 5 substages of prophase I with the following events: <ol style="list-style-type: none">1. Leptotene - condensation of chromatin and pairing of homologous chromosome2. Zygotene - synapsis3. Pachytene - crossing-over4. Diplotene - separation of sister chromatid and formation of chiasmata5. Diakinesis - chromosomes shorten and thicken; nucleolus disappear and nuclear envelope disintegrates
5. What cell organelle is abundant in hepatocytes (liver cells) in order to perform a variety of detoxification processes?	A. Ribosome B. Proteasome C. Lysosome D. Peroxisome	D Ribosome does not have any detoxification function. It synthesizes proteins that will remain in the cell as cytoplasmic structural or functional elements. Proteasome Specific for protein degradation Lysosome Digests materials derived from the cell interior and exterior. Uses hydrolases to split organic compounds Peroxisome Contains oxidative enzymes and catalase. H ₂ O ₂ (toxic substance) produced from oxidation is broken down by catalase into non-harmful substances hydrogen & O ₂ . In hepatocytes, peroxisome is responsible for detoxification of ingested alcohol by converting it to acetaldehyde.
6. Which cellular structure has an outer membrane layer that is continuous with the rough endoplasmic reticulum?	A. Smooth Endoplasmic Reticulum B. Mitochondrion C. Nucleus D. Golgi complex	C The NUCLEUS is bounded by a nuclear envelope which is composed of 2 layers of membrane: inner nuclear and outer nuclear membranes. The outer nuclear membrane closely resembles the membrane of the RER & is continuous with RER membrane.

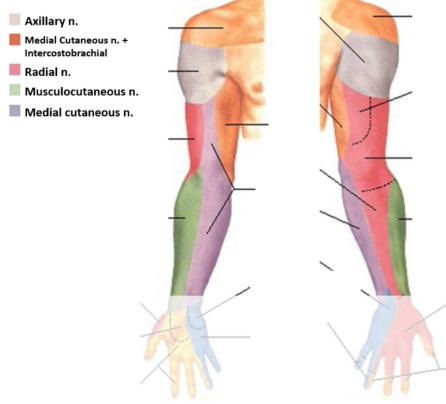
		Polyribosomes are attached to the cytoplasmic side of the outer nuclear membrane. The other 3 choices have no physical connections with the nucleus and nuclear envelope.									
7.Which of the following cell organelles relies on ubiquitin to perform its function?	A. Lysosome B. Mitochondrion C. Proteasome D. Golgi complex	C Contains hydrolytic enzymes like proteases, nucleases, glycosidases, lipases & phospholipases. Matrix contains enzymes of the Krebs cycle & enzymes involved in fatty-acid beta-oxidation Ubiquitin-activating enzymes that dissolves protein specifically tagged for this process Concern with post translational modification, sorting & packaging of proteins									
8.In the anatomical position, the GLENO-HUMERAL JOINT is considered to be _____ in relation to the ELBOW JOINT.	A. Anterior B. Inferior C. Lateral D. Proximal	D The relationship between parts of the limbs clearly illustrates the concept of proximal and distal with the former referring to the center of the subject. In anatomical terms, the center is the torso , specifically the median of the thorax. In the upper limb the following are the joints from proximal to distal: gleno-humeral --> elbow --> wrist --> carpo-metacarpal --> Metacarpo-phalangeal --> etc...									
9. Which plane transects the body into RIGHT and LEFT halves?	A. Transverse B. Frontal C. Coronal D. Sagittal	D 									
10. Which of the following bones belongs to the appendicular skeleton?	A. Skull B. Rib C. Scapula D. Vertebra	C Axial Skeleton (Central Supporting Axis) Axial Skeleton (Central Supporting Axis) Appendicular Skeleton (Bones of Extremities) Axial Skeleton (Central Supporting Axis)									
11. When an individual forms a FIST, the phalanges perform which action?	A.Flexion B. Abduction C. Circumduction D. Extension	A The Flexor Digitorum Profundus flexes the distal phalanges of the medial four fingers after the Flexor Digitorum Superficialis has flexed their middle phalanges (i.e., it curls the fingers and assists with flexion of the hand, making a fist).									
12.The sutures of the skull exemplify what type of JOINT according to articulating surfaces?	A. Synovial B. Fibrous C. Cartilaginous D. C4	B Table 10. Summary of joint classification <table border="1"> <thead> <tr> <th>Characteristic</th> <th>Types</th> <th>Mobility</th> </tr> </thead> <tbody> <tr> <td align="center" colspan="3">Fibrous</td> </tr> <tr> <td>Bones united by collagen fibers</td> <td>1. Suture 2. Syndesmosis 3. Gomphosis</td> <td>1. Immobile (Synarthrosis) 2. Slightly moveable (amphiarthrosis) 3. Immobile</td> </tr> </tbody> </table>	Characteristic	Types	Mobility	Fibrous			Bones united by collagen fibers	1. Suture 2. Syndesmosis 3. Gomphosis	1. Immobile (Synarthrosis) 2. Slightly moveable (amphiarthrosis) 3. Immobile
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13.The pectoralis major muscle is considered to be _____ in relation to the pectoralis minor muscle.	A. Superior B. Superficial C. Inferior D. Deep	B Pectoralis minor: Lies in the anterior wall of the axilla where it is almost completely covered by the pectoralis major									
14. In the anatomical position, FLEXION and EXTENSION of the elbow joint occurs along which axis?	A.Horizontal B. Vertical C. Antero-posterior	A 									
15.The EXTENSOR DIGITORUM LONGUS is an example of what shape of muscle?	A. Unipennate B. Fusiform C. Convergent	A Unipennate - "Leaf-like"; tendon lies along one side of the muscle and the muscle fibers pass obliquely to it (ex. Palmar interossei) Spindle-shaped; Wider belly; presence of tendons on both ends Ex. Biceps brachii Aka Convergent									

	D. Multipennate		Wide base; other end of the muscle converges to a singular tendon Ex. Pectoralis Major Multipennate - "multiple leaves"; tendon lying within its center and the muscle fibers passing to it from all sides, converging as they go (Ex. deltoid)																		
16.The VERTEBRA is best classified as what type of bone according to SHAPE?	A. Sesamoid B. Short C. Irregular D. Long	C	Table 5. Classification of bones according to shape <table border="1"> <thead> <tr> <th>TYPE</th><th>DESCRIPTION</th><th>EXAMPLE</th></tr> </thead> <tbody> <tr> <td>Long</td><td>Taller than wide, tubular</td><td>Humerus, Femur, Phalanges</td></tr> <tr> <td>Short</td><td>As tall as they are wide, "cube shaped"</td><td>Tarsus, Carpus</td></tr> <tr> <td>Flat</td><td>Usually serve protective functions; for muscle attachment</td><td>Sternum, ribs, bones of the skull</td></tr> <tr> <td>Irregular</td><td>Various shapes; protect organs or attach tendons</td><td>Segments of vertebral column</td></tr> <tr> <td>Sesamoid</td><td>Grows within a tendon</td><td>Pisiform, Patella (knee cap)</td></tr> </tbody> </table>	TYPE	DESCRIPTION	EXAMPLE	Long	Taller than wide, tubular	Humerus, Femur, Phalanges	Short	As tall as they are wide, "cube shaped"	Tarsus, Carpus	Flat	Usually serve protective functions; for muscle attachment	Sternum, ribs, bones of the skull	Irregular	Various shapes; protect organs or attach tendons	Segments of vertebral column	Sesamoid	Grows within a tendon	Pisiform, Patella (knee cap)
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17.The METACARPOPHALANGEAL JOINT OF THE INDEX FINGER is an example of which type of SYNOVIAL joint?	A. Condyloid B. Saddle C. Plane D. Hinge	A	Metacarpals and proximal phalanges are examples of long bones with typical condylar ends. This allows bi-axial movements of A. Flexion-extension B. Abduction-adduction Flex & extend, abduct & adduct, circumduction is also possible; biaxial (movement in sagittal and frontal planes) Same with the condyloid joint but with greater range of motion Ex: Carpometacarpal joint "Gliding joints"; for gliding movements (side-to-side, forward/backward) Ex: Bones of the hand, foot, and between vertebrae Allows flexion-extension therefore uni-axial																		
18.The lumbrical muscles are located in which of the following compartments of the hand?	A. Hypothenar B. Adductor C. Interosseous D. Central	D	Hypothenar compartment: Found opposite to thumb Adductor compartment: Contains the adductor pollicis muscle Dorsal and palmar interossei are found in the interosseous compartment. Lumbricals are found in the central compartment.																		
19.A 24 year old male suffered a stab wound to the right proximal posterior arm injuring the PROFUNDA BRACHII artery. A surgeon should dissect which of the following subfascial spaces to find this vessel?	A. Quadrangular B. Axilla C. Lower triangular D. Upper triangular	C	Posterior circumflex humeral artery is located in the quadrangular space. Profunda brachii artery is found traversing the lower triangular space. Circumflex scapular vessels are found in the upper triangular space.																		
20. Which of the following nerves innervates the EXTENSOR CARPI ULNARIS muscle?	A. Radial B. Ulnar C. Median D. Musculocutaneous	A	RADIAL NERVE innervates all muscles of the posterior compartments of both arm and forearm.																		
21. A military recruit is made to carry a bucket of water in each hand with the arms raised laterally. Which of the following muscles is doing most of the work?	A. Coracobrachialis B. Biceps brachii C. Deltoid D. Subscapularis	C	The biceps brachii and coracobrachialis muscles both cross the shoulder joint but neither plays a role in abduction of the arm. The deltoid is the primary muscle responsible for abduction of the arm especially beyond the 1st 15 degrees. From 0 to 15 degrees, the supraspinatus is the strongest initiator of abduction - hence, it is not found among the choices. The Subscapularis is a scapulohumeral muscle also but is mainly involved in medial rotation of the humerus.																		

<p>22. A medical technologist is performing a phlebotomy at the right cubital fossa. Which of the following structures forms the lateral border of the cubital fossa?</p>	<p>A. Brachioradialis muscle B. Pronator teres muscle C. Tendon of biceps brachii D. Lateral epicondyle of humerus</p>	A	<p>Table 23. Borders of Cubital Fossa [Lecturer's PPT]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #e0e0e0;">Boundaries</th><th style="background-color: #e0e0e0;">Contents</th></tr> </thead> <tbody> <tr> <td>Superior</td><td>Biceps brachii</td></tr> <tr> <td>Medial</td><td>Pronator teres</td></tr> <tr> <td>Lateral</td><td>Brachioradialis (part of the posterior compartment)</td></tr> <tr> <td>Floor</td><td>Brachialis of the arm, Supinator of the forearm</td></tr> <tr> <td>Roof</td><td>Brachial and antebrachial (deep) fascia reinforced by bicipital aponeurosis</td></tr> </tbody> </table>	Boundaries	Contents	Superior	Biceps brachii	Medial	Pronator teres	Lateral	Brachioradialis (part of the posterior compartment)	Floor	Brachialis of the arm, Supinator of the forearm	Roof	Brachial and antebrachial (deep) fascia reinforced by bicipital aponeurosis
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<p>23. The tendons of the following muscles attach to the digital extensor expansion, EXCEPT:</p>	<p>A. Flexor digitorum profundus B. Palmar interossei C. Lumbricals D. Extensor digitorum communis</p>	A	<p>Divided into four parts which ends in four tendons → Passes posterior to the FDS tendons and flexor retinaculum within the common flexor sheath</p> <p>On the distal ends of the metacarpals, the tendons flatten to form extensor expansions</p>												
<p>24. An athlete suffers a tear of the right rotator cuff at the area of the lesser tubercle. Which of the following arm movements will be difficult and painful?</p>	<p>A. Medial rotation B. Extension C. Lateral rotation D. Abduction</p>	A	 <p>*Supraspinatus *Infraspinatus *Teres minor T Greater tubercle Intertubercular sulcus *Subscapularis S Lesser tubercle *Rotator cuff muscles</p> <p>Subscapularis main action: Medial rotator of the humerus, adducts humerus</p>												
<p>25. A surgeon suffers from CARPAL TUNNEL SYNDROME. Contraction of which of the following muscles will cause pain in the affected wrist?</p>	<p>A. Abductor pollicis longus B. Extensor digitorum communis C. Flexor pollicis longus D. Flexor carpi ulnaris</p>	C	<ul style="list-style-type: none"> • Carpal Tunnel Syndrome: <ul style="list-style-type: none"> → Impinging on the: <ul style="list-style-type: none"> - Median Nerve - Tendons of: <ul style="list-style-type: none"> • Flexor digitorum superficialis • Flexor digitorum profundus • Flexor pollicis longus 												
<p>26. Through which part of the clavipectoral fascia does the lateral pectoral nerve emerge?</p>	<p>A. Deep cervical fascia B. Pectoralis fascia C. Costocoracoid membrane D. Suspensory ligament of the axilla</p>	C	<p>→ Attached to the clavicle and sternum → Leaves lateral border of pectoralis major and becomes axillary fascia</p> <p>Costocoracoid membrane</p> <ul style="list-style-type: none"> ▪ Part of the clavipectoral fascia and pectoralis minor and subclavius ▪ Has opening where the cephalic vein, thoracoacromial artery (anteriorly), and the lateral pectoral nerve are found <p>Converge with inferior margin of pectoralis fascia to be axillary fascia</p>												
<p>27. When a general salutes his troops, the muscles responsible for the straightening of his index to little fingers belong to which compartment?</p>	<p>A. Anterior arm B. Posterior arm C. Posterior forearm D. Anterior forearm</p>	C	<p>The deltoid is the primary muscle responsible for abduction of the arm especially beyond the 1st 15 degrees. From 0 to 15 degrees, the supraspinatus is the strongest initiator of abduction - hence, it is not found among the choices.</p> <p>The biceps brachii and coracobrachialis muscles both cross the shoulder joint but neither plays a role in abduction of the arm.</p> <p>The Subscapularis is a scapulohumeral muscle also but is mainly involved in medial rotation of the humerus.</p>												

28.A bodybuilder is flexing both his elbows against a 20kg resistance (curls). Which of the following muscle compartments is being worked?	<p>A. Posterior forearm</p> <p>B. Anterior forearm</p> <p>C. Anterior arm</p> <p>D. Posterior arm</p>	<p>→ Attached to the clavicle and sternum → Leaves lateral border of pectoralis major and becomes axillary fascia</p> <p>→ Attached to the clavicle and sternum → Leaves lateral border of pectoralis major and becomes axillary fascia</p> <p>Consists of 3 flexor muscles → Larger cross sectional area than the posterior compartment → Almost twice as strong as the extensors in all positions</p> <p>Consists of 2 extensor muscle</p>								
29.A patient with tennis elbow suffers pain on extension of the wrist. At which bony landmark is this pain located?	<p>A. Medial humeral epicondyle</p> <p>B. Lateral humeral epicondyle</p> <p>C. Head of the radius</p> <p>D. Olecranon process</p>	<p>The medial epicondyle of the humerus is the point of attachment of the common flexor tendon.</p> <p>The lateral epicondyle of the humerus is the point of attachment of the common extensor tendon.</p> <p>B The radial head may be palpable close to the lateral epicondyle of the humerus ; however, it is deep along the posterior aspect of the forearm and distal to the joint.</p> <p>The olecranon process is the attachment of the triceps brachii --> elbow extension</p>								
30.Which of the following arteries DIRECTLY supplies the triceps brachii muscle?	<p>A. Radial</p> <p>B. Profunda brachii</p> <p>C. Brachial</p> <p>D. Ulnar</p>	<p>Begins in the cubital fossa at the level of the neck of the radius</p> <p>(Deep Brachial Artery)</p> <p>B Main arterial supply to the arm</p> <p>Gives off a deep branch and collateral branches supplying the arterial anastomosis at the elbow</p> <p>Supplies the muscles of the medial and central forearm, the common flexor sheath, and the ulnar and median nerves.</p>								
31.Which of the following statements pertaining to the cephalic vein is correct?	<p>A. It accompanies the brachial artery.</p> <p>B. It drains the medial side of the forearm.</p> <p>C. It empties into the axillary vein.</p> <p>D. It courses along the bicipital groove.</p>	<p>Arises from the lateral end of the dorsal venous arch of the hand</p> <p>→ Runs along the lateral side of the antebrachium in the superficial fascia</p> <p>→ Ascends on the radial side of the forearm to the elbow</p> <p>and continues up the arm in the deltopectoral groove</p> <p>→ Communicates with the median cubital vein</p> <ul style="list-style-type: none"> ▪ Passes obliquely across the anterior aspect of the elbow in the cubital fossa joining the basilic vein <p>→ Runs along the lateral side of the antebrachium in the superficial fascia</p> <p>→ Continuous along the deltopectoral groove (between the deltoid and pectoralis major)</p> <p>→ Pierces the clavipectoral fascia and eventually drains into the axillary vein</p>								
32.The common palmar digital arteries are DIRECT branches of which arterial arch?	<p>A. Deep palmar</p> <p>B. Superficial palmar</p> <p>C. Palmar carpal</p> <p>D. Dorsal carpal</p>	<p>Gives off: ▪ Three palmar metacarpal arteries</p> <p>Gives rise to the 3 common palmar digital arteries</p> <p>B Palmar and Dorsal Carpal Branches</p> <p>→ Participates in the periarticular arterial anastomosis around the wrists</p>								
33.Which recurrent arterial branch anastomoses with the superior ulnar collateral artery?	<p>A. Radial recurrent</p> <p>B. Anterior ulnar recurrent</p> <p>C. Interosseous recurrent</p> <p>D. Posterior ulnar recurrent</p>	<p>Mnemonic: SIMR-PAIR</p> <p>Table 2. Periarticular arterial anastomosis</p> <table border="1" data-bbox="903 1837 1475 1949"> <tr> <td>Superior ulnar collateral</td> <td>Posterior ulnar recurrent</td> </tr> <tr> <td>Inferior ulnar collateral</td> <td>Anterior ulnar recurrent</td> </tr> <tr> <td>Middle collateral</td> <td>Interosseous recurrent</td> </tr> <tr> <td>Radial collateral</td> <td>Radial recurrent</td> </tr> </table>	Superior ulnar collateral	Posterior ulnar recurrent	Inferior ulnar collateral	Anterior ulnar recurrent	Middle collateral	Interosseous recurrent	Radial collateral	Radial recurrent
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Inferior ulnar collateral	Anterior ulnar recurrent									
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34.The lymph from the hand drains INITIALLY into which group of axillary	<p>A. Posterior</p>	<p>→ Skin and muscles of posterior thoracic wall and shoulder region</p>								

	B. Central	→ Lower part of the back of the neck. Receives lymph from anterior, posterior, and lateral axillary lymph nodes.																			
	C. Anterior	Lymphatic drainage of the anterolateral part of the thoracic wall including: → Most lateral drainage from the mammary gland → Skin and muscles of the superior umbilical part of the abdominal wall																			
	D. Lateral	● Receives nearly ALL of the lymph from the upper limbs ● In the direct line of lymph drainage of the upper limb																			
35. At the cubital fossa, the brachial artery is lateral to which of the following structures?	A. Radial nerve B. Musculocutaneous nerve C. Median nerve D. Ulnar nerve	<p>C</p> <p>Table 4. Relationships of the Brachial Artery</p> <table border="1"> <tr> <td>Anterior</td> <td>Coracobrachialis Biceps</td> </tr> <tr> <td></td> <td>• Front of the upper part - Medial cutaneous nerve of the forearm</td> </tr> <tr> <td></td> <td>• Middle part - where the median nerve crosses</td> </tr> <tr> <td></td> <td>• Lower part - Bicipital aponeurosis</td> </tr> <tr> <td>Posterior</td> <td>Triceps Insertion of the Coracobrachialis and Brachialis</td> </tr> <tr> <td>Laterally</td> <td>Above Lower</td> <td>Median Nerve Coracobrachialis Biceps Muscles</td> </tr> <tr> <td>Medially</td> <td>Superior/Upper Part Inferior/Lower Part</td> <td>Ulnar Nerve Basilic Vein</td> </tr> <tr> <td></td> <td></td> <td>Median Nerve (medial side)</td> </tr> </table> <p><i>Take note that the median nerve is initially lateral to the brachial artery, but eventually becomes medial to it</i> <i>Note: The brachial artery is superficial. Therefore, you will have to try to locate it by relating it to surrounding structures</i></p>	Anterior	Coracobrachialis Biceps		• Front of the upper part - Medial cutaneous nerve of the forearm		• Middle part - where the median nerve crosses		• Lower part - Bicipital aponeurosis	Posterior	Triceps Insertion of the Coracobrachialis and Brachialis	Laterally	Above Lower	Median Nerve Coracobrachialis Biceps Muscles	Medially	Superior/Upper Part Inferior/Lower Part	Ulnar Nerve Basilic Vein			Median Nerve (medial side)
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36. The subclavian artery becomes the axillary artery at which landmark?	A. Lateral border of the clavicle B. Inferior border of the teres major C. Lateral border of the first rib D. Superior border of the pectoralis minor	<p>C</p> <ul style="list-style-type: none"> ● End of the axillary artery ● 3rd part of the axillary artery - extends from the lower lateral border of the pectoralis minor to the inferior border of the teres major muscle <p>End of the 1st part of axillary artery</p>																			
37. At which part of the radius does the brachial artery divide into the radial and ulnar branches?	A. Radial tuberosity B. Styloid process C. Head D. Neck	<p>D</p> <p>Brachial artery serves as the main blood supply of the arm, and travels medially towards the elbow. It terminates at the opposite neck of the radius and divides into the ulnar and radial artery.</p>																			
38. Which of the following arteries is a branch of the second (2nd) part of the axillary artery?	A. Subscapular B. Posterior humeral circumflex	<p>D</p> <p>3rd Part of the Axillary Artery</p> <ul style="list-style-type: none"> ● Subscapular artery: largest branch of the axillary artery (greatest diameter, shortest length) <ul style="list-style-type: none"> ○ Circumflex scapular artery ○ Thoracodorsal artery ● Anterior circumflex humeral artery (35%) ● Posterior circumflex humeral artery (65%) 																			

	C. Superior thoracic D. Thoracoacromial		1st Part of the Axillary Artery 2nd Part of the Axillary Artery <ul style="list-style-type: none"> Thoracoacromial artery: costocoracoid membrane <ul style="list-style-type: none"> Clavicular Acromial Deltoid Pectoral Lateral thoracic artery: long thoracic nerve
39. Which veins of the forearm drains the blood arising from the skin overlying the hypothenar area?	A. Basilic B. Radial C. Cephalic D. Median cubital	A	Medial side (side of the fifth digit) of the forearm Thenar area or lateral side (thumb side) of the forearm Drains the hand, wrist, forearm
40. The thumb of a 40 year old male construction worker was amputated due to a crushing injury. To control bleeding, the surgeon had to ligate direct branches of which of the following arteries?	A. Radial B. Proper palmar digital C. Common palmar digital D. Ulnar	A	Branches of the Radial artery from the deep palmar arch <ul style="list-style-type: none"> 3 palmar metacarpal arteries Princeps pollicis artery - <u>principal artery of the thumb</u> (which was ligated in the case) Radialis indicis artery - supplies lateral side of the index finger The ulnar artery enters the hand through the ulnar (Guyon) canal and will directly divide into the superficial palmar arch and deep palmar arch. The superficial palmar arch gives rise to the common palmar digital arteries and anastomose with the palmar metacarpal arteries to form the proper palmar digital arteries .
41. A carpenter scratched his skin at the lateral aspect of the left forearm against an exposed nail. The pain felt would most likely be transmitted by which of the following nerves?	A. Musculocutaneous B. Radial C. Median D. Ulnar	A	 Figure 24. Cutaneous Innervation of the UL (L:Ant.; R: Post.) [Dr. Pacuan's video]
42. With the limb hanging limply by the side, the arm is noted to be medially rotated with the forearm pronated and wrist flexed. If this resulted from difficult vaginal delivery, which trunk of the brachial plexus is most likely damaged?	A .Middle B. Upper	B	Posterior cord injury <ul style="list-style-type: none"> Saturday Night palsy, Crutches' palsy, Honeymoon palsy, Radial nerve palsy Injury to the <u>radial nerve</u> Manifestation: "Wrist drop" Erb's Palsy <ul style="list-style-type: none"> Injury to the roots <u>C5-C6</u> Most common with <u>brachial birth trauma</u> Manifestation: "Waiter's tip"

	C. Lower		Klumpke's Palsy <ul style="list-style-type: none"> - Injury to <u>C7-C8, T1</u> - Obstetric injury - Manifestation: "Claw hand"
43. An ulnar nerve injury is suspected in a patient who hyperextended his right arm when grabbing a branch to keep from falling from a tree. Which of the following findings would you expect on physical examination of the 4th and 5th digits of the right hand?	A. Inability to flex the distal interphalangeal joints B. Inability to extend the metacarpophalangeal joints C. Intact sensation on the dorsal surface D. Flexion of the proximal interphalangeal joints at rest	A	Ulnar Nerve injury - produced by unopposed action of extensor and flexor digitorum. The ff can be observed: <ul style="list-style-type: none"> • Claw hand/ Atrophy of the Hypotenar compartment • Impaired Flexion of the distal interphalangeal joint • Hyperextension of the metacarpophalangeal joint 
44. A difficulty in abducting the arm beyond 30 degrees from the trunk may be caused by injury to which cord of the brachial plexus?	A. Lateral B. Medial C. Posterior	C	Musculocutaneous nerve Ulnar nerve Abduction movement of the arm is supplied by the axillary nerve
45. Which of the following terminal branches of the brachial plexus consists of fibers originating from ALL nerve roots C5 to T1?	A. Ulnar B. Radial C. Long thoracic D. Musculocutaneous	B	Nerve roots: C7-T1 Origin: Medial cord Nerve roots: C5-C8, T1 Origin: Posterior cord Nerve roots: C5-C7 Nerve roots: C5-C7 Origin: Lateral cord
46. Which of the following nerves can be found within the cubital fossa?	A. Median B. Axillary C. Ulnar D. Musculocutaneous	A	Contents of the cubital fossa <ul style="list-style-type: none"> • Median nerve • Radial nerve • Brachial artery • Biceps tendon Can be found in the quadrangular space , along with the <u>posterior circumflex humeral artery</u>
47. An elderly woman was unable to extend her right wrist and fingers at the metacarpophalangeal joints after a fall. Radiograph revealed a midshaft humeral fracture. Which among the following nerves is MOST LIKELY affected?	A. Ulnar B. Axillary C. Median D. Radial	D	<ul style="list-style-type: none"> • Descends on the medial side of the arm • At elbow: passes posterior to the medial epicondyle of the humerus • Exits the quadrangular space with the posterior circumflex artery • A fracture in the surgical neck of the humerus may injure this nerve <p>Descends down the arm, adjacent to the brachial artery and will eventually cross over it to be situated medially. Afterwards, it will enter the cubital fossa.</p> <p>Radial Nerve - main innervation of the posterior compartment of the arm and forearm</p> <ul style="list-style-type: none"> • <u>Pathway:</u> Passes posteriorly to the humerus through the radial groove and perforates into the cubital fossa • Radial groove - located approx. mid shaft of the humerus
48. Which of the following best describes the course of the musculocutaneous nerve?	A. It pierces the coracobrachialis muscle. B. It winds around the surgical	A	This is axillary nerve

	neck of the humerus.		- Fracture in the surgical neck of the humerus could injure the axillary nerve due its proximity
	C. It passes beneath the bicipital aponeurosis		Structures (contents of the cubital fossa) that pass beneath the bicipital aponeurosis are: <ul style="list-style-type: none"> • Median nerve • Radial nerve • Brachial artery • Biceps tendon
	D. It passes behind the medial humeral epicondyle.		Ulnar nerve , not musculocutaneous nerve, that passes behind the medial humeral epicondyle
49. Which of the following nerves is most probably affected in a patient with progressive loss of coordination and strength of the thumb manifesting with difficulty in buttoning her blouse?	A. Median B. Radial C. Ulnar D. Musculocutaneous	A	<ul style="list-style-type: none"> • Thenar muscles EXCEPT Adductor pollicis & the deep head of Flexor pollicis brevis • Lateral lumbricals for digits 2 & 3 • Lateral or radial half of the dorsal aspect of the hand & thumb • Proximal portions of dorsal aspect of digits 2 & 3 • Lateral or radial half of digits 4 • Medial aspect of 4th & 5th digit • Majority of intrinsic muscle of the arm and hand including hypothenar & thenar (deep head of Flexor pollicis brevis & Adductor pollicis) • Flexion of the arm at the elbow, supination of the forearm
50. Pain was felt on the skin over the right deltoid muscle upon injection for COVID-19 vaccine. The dermatome of which of the following nerve roots is most likely involved?	A. C6 B. C7 C. C8 D. T1	A	<p>Deltoid muscle is innervated by the axillary nerve (C5, C6)</p> <p>Most likely involved with lower trunk of the brachial plexus</p> <p>Figure 1. Dermatome Maps: A & B - Foerster, C & D - Kaegan & Garrett</p>
51. Which muscle of the forearm is innervated by two terminal branches of the brachial plexus?	A. Flexor digitorum profundus B. Flexor digitorum superficialis C. Flexor pollicis longus D. Pronator quadratus	A	<p>Medial part: Supplied by the ulnar nerve Lateral part: Supplied by the anterior interosseous nerve, from median nerve</p> <p>Innervated by the <u>median nerve</u></p> <p>Innervated by the <u>anterior interosseous nerve, from median nerve</u></p> <p>Innervated by the <u>anterior interosseous nerve, from median nerve</u></p>
52. The secretory products of exocrine glands are conducted to the exterior initially via which of the following ducts?	A. Intercalated B. Interlobular C. Excretory D. Striated	A	<p>From the striated ducts, the secretions are brought to *intralobular ducts (based on some books) and then to the interlobular ducts (ducts in between the lobes)</p> <p>Ductal system summary: Intercalated duct → Striated ducts → *Intralobular → Interlobular ducts</p>
53. A gland with secretory portions consisting of predominantly clear cells	A. Purely serous	C	Composed of <u>pyramidal cells</u> with a broad base <u>rounded nuclei</u> with basophilic cytoplasm ONLY

with compressed basal nuclei is BEST classified according to secretion as:	<p>B. Mixed, predominantly serous</p> <p>C. Mixed, predominantly mucous</p>	<ul style="list-style-type: none"> • Ex. Parotid gland <p>Combination of pyramidal cells (serous cells) and clear cells with flattened basal nuclei (mucous cells), but the pyramidal cells (serous) predominate.</p> <ul style="list-style-type: none"> • Ex. Submandibular gland <p>Combination of pyramidal cells (serous cells) and clear cells with flattened basal nuclei (mucous cells), but the clear cells (mucous) predominate.</p> <ul style="list-style-type: none"> • Ex. Sublingual gland
54. In diarrhea caused by <i>Clostridium perfringens</i> toxin that binds claudin in intestinal epithelial cells, which of the following junctional complexes would MOST likely be affected?	<p>A. Adherens junction</p> <p>B. Macula adherens</p> <p>C. Tight junction</p> <p>D. Gap junction</p>	<p>MNEMONIC: "Zonula (C)Adherens"</p> <ul style="list-style-type: none"> • Involved CHONS: <u>cadherin</u> and <u>catenin</u> • Ca⁺-requiring junction that surrounds the cell like a belt <p>MNEMONIC: "DesmoCoGlein"</p> <ul style="list-style-type: none"> • Also known as Desmosome; "spot-welds" • Involved CHONS: <u>desmocollin</u> and <u>desmoglein</u> • Anchoring junction that provides stability <p>MNEMONIC: "Zonula "Ocludin/ Occludin"</p> <ul style="list-style-type: none"> • Involved CHONS: <u>claudin</u> and <u>occludin</u> • "Gatekeeper" junction <p>MNEMONIC: "Connexus"</p> <ul style="list-style-type: none"> • Involved CHON: <u>connexon</u> • Allows rapid communication (example: nerves)
55. A gland that releases its contents from secretory vesicles via exocytosis is classified as:	<p>A. Merocrine</p> <p>B. Holocrine</p> <p>C. Apocrine</p>	<p>Merocrine/ Eccrine</p> <ul style="list-style-type: none"> - Most common mode of glycoprotein secretion - Example: <u>Salivary glands</u> <p>Holocrine</p> <ul style="list-style-type: none"> - Undergoes apoptosis; disintegrates and is released together with the product - Example: <u>Sebaceous gland</u> <p>Apocrine</p> <ul style="list-style-type: none"> - Apical portion is "pinched"/released together with the product - Example: <u>Mammary glands</u>
56. Which of the following is an example of a unicellular gland?	<p>A. Intestinal</p> <p>B. Sebaceous</p> <p>C. Goblet</p> <p>D. Mammary</p>	<p>C Multicellular gland</p> <p>C Multicellular gland</p> <p>C Multicellular gland</p>
57. Which of the following is a characteristic of epithelial tissue?	<p>A. Abundant extracellular matrix</p> <p>B. Absence of polarity</p> <p>C. High regenerative capacity</p> <p>D. Prominent vascularity</p>	<p>A Epithelial tissue exhibits polarity</p> <p>A Characteristic of smooth muscle which has active regeneration capacity.</p> <p>A Epithelial tissue is avascular - no blood supply</p>
58. Which of the following glands is BEST classified morphologically as a simple branched tubular gland?	<p>A. Intestinal</p> <p>B. Sweat</p> <p>C. Gastric</p> <p>D. Sublingual</p>	<p>C Simple tubular</p> <p>C Simple coiled tubular</p> <p>C Simple branched acinar</p>

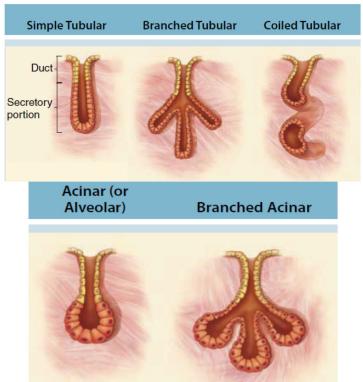
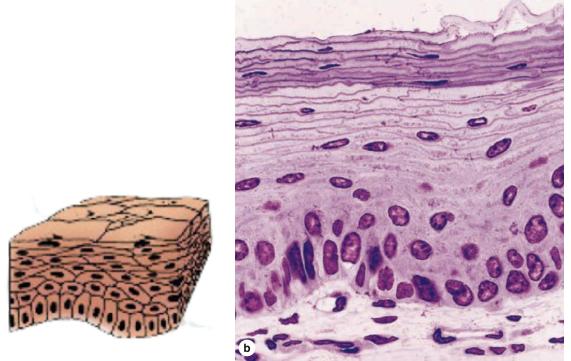


Figure 36-37. Structural classes of simple glands [Junqueira]

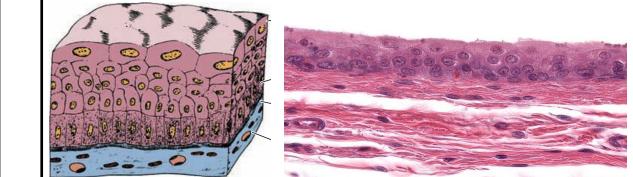
A. Stratified squamous, wet type



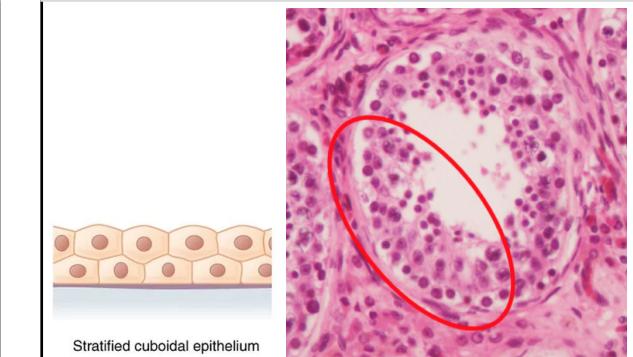
B. Pseudostratified columnar



C. Transitional



D. Stratified cuboidal

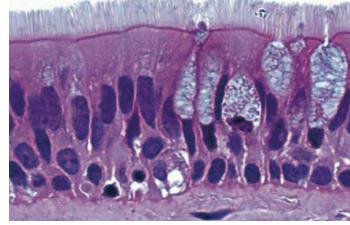


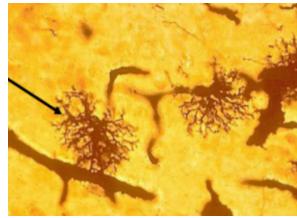
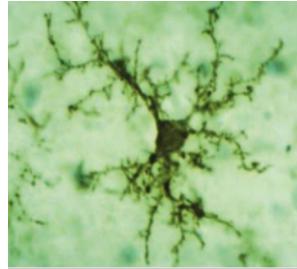
59. Which type of epithelium decreases in the number of layers when the organ that it lines is distended?

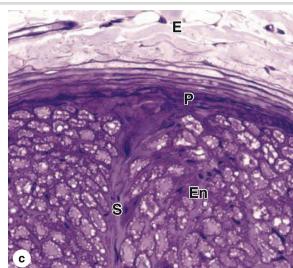
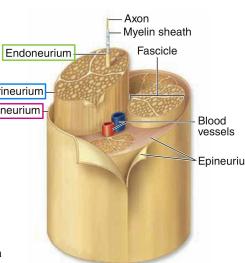
60. Kidney tubules are lined by which type of epithelium that allows the active transport of substances?

- A. Transitional
- B. Simple cuboidal
- C. Stratified squamous, dry type
- D. Pseudostratified columnar

- B** Urinary bladder
- Skin
- Lining of the bronchi, nasal cavity, trachea

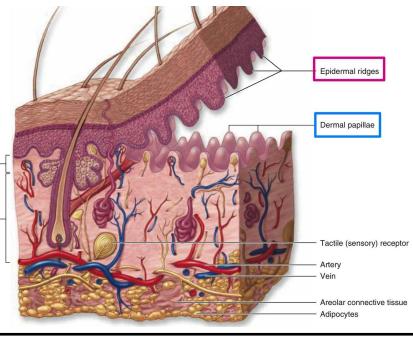
61. Which of the following apical surface modifications propels particulate matter and mucus along the respiratory surfaces?	<p>A. Stereocilia B. Cilia C. Microvilli D. Flagella</p>	<ul style="list-style-type: none"> • Epididymis: Mainly for <u>absorbing fluid</u> • Inner ear sensory cells: function as <u>mechanoreceptors</u> <p>B “To propel”; Sweep or move fluids, cells, or particulate matter across cells surfaces</p> <ul style="list-style-type: none"> • Increase surface area of a cell • Increase rate of absorption <p>Motility but specific for sperm</p>
62. Which of the following is the correct ORGAN/STRUCTURE : EPITHELIAL LINING pair?	<p>A. Thin skin : stratified squamous non-keratinized epithelium B. Trachea : pseudostratified columnar ciliated epithelium with goblet cells C. Colon : simple cuboidal epithelium with microvilli D. Epididymis : stratified columnar epithelium with cilia</p>	<p>B Thin skin is <u>keratinized</u></p>  <p>For colon, it should be <u>simple columnar epithelium with microvilli</u> (in some cases, there is (+) of goblet cells) Presence of <u>stereocilia</u>, not cilia</p>
63. Which of the following muscle tissues is characterized by cross-striations and multiple peripherally located nuclei on light microscopy?	<p>A. Cardiac B. Skeletal C. Smooth</p>	<p>B Uninucleated Multinucleated Uninucleated</p>
64. Which type of synapse allows transmission of impulse from one axon to another neuron's cell body?	<p>A. Axosomatic B. Axodendritic C. Somatodendritic</p>	<p>A Between axon and dendrite Does not exists</p>
65.Which of the following glial cells in the white matter of the brain have long, straight, and radially arranged foot processes?	<p>A. Fibrous astrocytes B.Oligodendroglia C. Protoplasmic astrocytes</p>	<p>A Fibrous astrocytes have few long, straight processes are found mainly in <u>white matter</u></p>  <ul style="list-style-type: none"> • Compared to astrocytes, oligodendroglia/ oligodendrocytes are smaller and have few, thin, short processes without excessive branching • Predominant glial cell in the white matter
		 <p>Have coarse-looking, branch-like, numerous short processes that are mainly found in <u>grey matter</u></p>

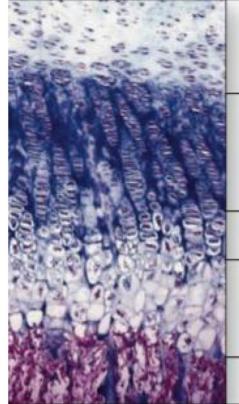
			
	D. Microglia		<ul style="list-style-type: none"> Small cell that contains active mobile processes and are evenly distributed throughout gray and white matter Functions as phagocytic cells that move through CNS by engulfing infectious agents and other harmful substances 
66. Which among the following junctional complexes transmit contractile forces by serving as anchoring sites for actin filaments in cardiac muscle?	A. Fascia adherentes B. Desmosomes C2 C. Tight junction D. Gap junction	A	<p>Fascia adherentes</p> <ul style="list-style-type: none"> Anchoring sites for actin filaments of terminal Most prominent Found in <u>transverse</u> portions <p>Found in <u>transverse</u> portions and bind individual cardiac cells to one another</p> <p>B</p> <ul style="list-style-type: none"> Involves the proteins <u>claudin and occludin</u>, not actin “Gate-keeper” that ensures all molecules enter/exit the cell via the <u>transcellular pathway</u> <p>Found in <u>lateral</u> portions and provide ionic continuity between adjacent cells</p>
67. Which of the following events FIRST happens to the perikaryon when a peripheral nerve fiber is transected?	A. Central migration of nucleus B. Chromatolysis C. Atrophy D. Increase in Nissl bodies	B	<p>Occurs 3 months after the injury</p> <p>Defined as dissolution of the Nissl bodies in the cell body of a neuron. Decrease in nissl bodies occurs 2 weeks after injury</p> <p>Innervated muscle undergoes atrophy 3 weeks after injury</p> <p>Occurs 3 months after the injury</p>
68.Which of the following coverings surrounds the entire peripheral nerve trunk?	A. Perineurium B. Myelin sheath C. Epineurium D. Endoneurium	C	<ul style="list-style-type: none"> Consisting of layered, squamous fibroblastic cells joined by tight junctions to make a blood-nerve barrier Surrounds the endoneurium Fat-like substance that covers the the axons ONLY ASSOCIATED WITH AXONS Produced by oligodendrocytes in the <u>CNS</u> and schwann cells in the <u>PNS</u> <p>Thick, outermost layer of dense irregular CT that surrounds the perineurium</p> <p>Thin CT layer immediately surrounding schwann cells in the peripheral nerves, containing a few non-fenestrated capillaries and much reticulin</p>



69. Which of the following statements best describes the regenerative capacity of skeletal muscles?	A. Satellite cells undergo activation and proliferation. B. Existing myocytes undergo mitosis. C. Muscle shows very little regenerative capacity.	<p>A</p> <p>Table 3. Regeneration of different types of muscle tissue</p> <table border="1"> <thead> <tr> <th>Skeletal</th> <th>Smooth</th> <th>Cardiac</th> </tr> </thead> <tbody> <tr> <td>Undergo limited regeneration</td> <td>Active regeneration</td> <td>Virtually no regenerative capacity beyond early childhood (very little regenerative capacity)</td> </tr> <tr> <td>Source of regeneration: satellite cells</td> <td>After injury, cells undergo mitosis and replaces damaged tissue</td> <td>Defects / damage are replaced by proliferating fibroblasts and growth of connective tissue, forming myocardial scars. The cardiac tissue's capacity to contract diminishes in the presence of myocardial scars.</td> </tr> </tbody> </table>	Skeletal	Smooth	Cardiac	Undergo limited regeneration	Active regeneration	Virtually no regenerative capacity beyond early childhood (very little regenerative capacity)	Source of regeneration: satellite cells	After injury, cells undergo mitosis and replaces damaged tissue	Defects / damage are replaced by proliferating fibroblasts and growth of connective tissue , forming myocardial scars. The cardiac tissue's capacity to contract diminishes in the presence of myocardial scars .
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70. Which component of the sarcomere is bisected by the Z-disc at its center?	A. I band B. A band C. H band D. M line	<ul style="list-style-type: none"> • Light band • Contains actin filament • Isotropic • Bisected by Z band <p>• Dark band</p> <ul style="list-style-type: none"> • Contains actin and myosin filament • Anisotropic <p>Located at the center of the <u>A band</u></p> <p>Bisects each <u>H band</u></p>									
71. Which part of the neuron is devoid of the Nissl bodies?	A. Axon B. Dendrite C. Perikaryon	<p>A</p> <ul style="list-style-type: none"> • Numerous elongated processes extending from the perikaryon • Also called the cell body or soma • Cytoplasm contains Nissl bodies (stacked rough ER cisternae + free ribosomes seen as clumps of basophilic material), which represents sites of protein synthesis 									
72. The Purkinje cells of the cerebellar cortex are classified as what type of neuron according to the number of processes?	A. Pseudounipolar B. Bipolar C. Anaxonic D. Multipolar	<p>D</p> <p>Example: Dorsal root ganglion</p> <p>Example: Retina of the eye</p> <p>This is a type of synaptic contact</p> <p>Another example: Sympathetic ganglion</p>									
73. The reparative capacity of connective tissue during wound repair is dependent on the activity of which of the following cells?	A. Fibroblasts B. Leukocytes C. Macrophages	<p>A</p> <ul style="list-style-type: none"> • Most common cell type in CT that produces ECM • Targets of growth factors for <u>cell growth and differentiation</u> <ul style="list-style-type: none"> - Myofibroblasts: wound healing <p>Leukocytes (WBC) → active in circulation</p> <ul style="list-style-type: none"> - Migrate to the CT via diapedesis during inflammation or injury - First line of defence <p>Macrophages</p> <ul style="list-style-type: none"> - Phagocytic cells (histiocytes) → FOR CT ONLY 									

	D. Plasma cells	Lymphocytes (Plasma cells) <ul style="list-style-type: none"> - One of the transient cells - Produces antibodies - “Spokes of a wheel” or “clock face” nucleus
74. The tissue containing the capillary loops that supplies nutrients to the epidermis is BEST classified as what type of connective tissue?	A. Dense regular B. Areolar C. Dense irregular D. Adipose	B Connective tissue in the lower (reticular) dermis Description refers to the subpapillary plexus , situated immediately beneath the dermal papillae, which is surrounded by areolar or loose connective tissue. Connective tissue in the upper (papillary) dermis Hypodermis layer
75. Which part of the nail is characterized by continuously proliferating and differentiating keratinocytes?	A. Nail matrix B. Nail plate C. Hyponychium D. Nail root	A Where cell divide, move distally, and become keratinized to form the nail root Bound to the nail bed of the epidermis Skin beneath the free end of the nail <ul style="list-style-type: none"> • Proximal part of the nail covered by nail fold • Matures and hardens to nail plate
76. Which of the following protein fibers are secreted by both fibroblasts and smooth muscle cells?	A. Reticular B. Collagen C. Elastic	Produced by reticulocytes C Fibroblasts <u>only</u> Both smooth muscle and fibroblast
77. Which of the following sensory receptors specialized to detect light touch are mostly located in the dermal papillae of thick skin?	A. Meissner corpuscles B. Merkel cells C. Pacinian corpuscles D. Krause end bulbs	A Meissner corpuscle = light touch = magaan = Mitochondria-like (MM of encapsulated) Merkel cells = unencapsulated sensory receptor located in the <u>basal layer of the epidermis</u> = tonic receptor for sustained <u>light touches</u> , sensing texture = magaan (MM of unencapsulated) Pacinian corpuscle = encapsulated receptor for pressure and vibrations located in the <u>deeper dermis in the subcutaneous tissue</u> = Rose or flower-like Encapsulated structures located in the skin of <u>penis and clitoris</u> that detect low-frequency vibrations
78. Which epidermal layer of the skin consists of keratinocytes with cytoplasmic extensions at the sites of desmosomal attachment which become prominent due to histologic preparation?	A. Stratum basale B. Stratum spinosum C. Stratum corneum D. Stratum granulosum	Single Layer of basophilic cuboidal cells on the basement membrane B Keratin filaments assemble into bundles of short cytoplasmic projections called tonofilaments which become prominent under histologic preparation. Consists of 15 to 20 layers of squamous, keratinized cells filled with birefringent filamentous keratins Consists of 3 to 5 layers of flattened cells undergoing terminal differentiation and losing their nucleus
79. The delicate stromal fibers that support lymph nodes are composed of which of the following types of collagen?	A. Type I B. Type IV C. Type VII D. Type III	Type I: Number 1/ tens1on <ul style="list-style-type: none"> - Most common fiber - Resistance to tension Type IV: Floor (sounds like four) <ul style="list-style-type: none"> - Sheet forming in the basal lamina (epithelial cell support) D Type of linking/ anchoring collagen that anchors basal laminae to underlying reticular lamina in the epithelial basement membrane <ul style="list-style-type: none"> • Type III : Re3cular <ul style="list-style-type: none"> - Forms supportive <u>stroma</u> (reticulin) in the lymph node, spleen, basal lamina - Argyrophilic affinity to silver stain
80. Skin cancers are mostly derived from cells of which of the following epidermal layers?	A. Stratum granulosum B. Stratum lucidum C. Stratum basale D. Stratum corneum	C Layer where undergoing <u>terminal</u> differentiation (keratinization) takes place Clear layer which is only present to those who have thick skin Presence of intense mitotic activity which is further aggravated by the presence of cancer cells The <u>most superficial layer</u> ; nuclear: absence of nuclei; Since this layer is considered “dead” → continuously

			"sloughed off"
81. Which of the following structures controls the direction of blood flow to and from the surface of the skin to regulate body temperature?	A. Subpapillary plexus B. Cutaneous plexus C. Arteriovenous anastomosis D. Pilosebaceous unit	C	Capillary loops that supply to the avascular epidermis Supply nutrition to hypodermis, hair follicles, deep sebaceous glands, and sweat glands Thermoregulation via vasoconstriction and vasodilation Thermoregulation, responsible for goosebumps
82. The interface between the 2 main layers of the skin is held together by which of the following structures?	A. Stratum basale and basement membrane B. Granular and corneal layers C. Papillary and reticular dermis D. Epidermal ridges and dermal papillae	D	These are epidermal layers Sublayers of the dermis: - Papillary dermis: Loose/ Areolar CT - Reticular dermis: Dense Irregular CT 
83. Which of the following macromolecules in the ground substance of the connective tissue bind the cells to the protein fibers?	A. Glycosaminoglycans B. Proteoglycans C. Multi-adhesive glycoproteins	C	Hydrophilic mucopolysaccharide that attract water, gives the matrix amorphous or gel-like appearance Binds sulfated glycosaminoglycans (GAGs) for <u>tissue hydration</u> and swelling pressure to <u>withstand compression forces</u> Have multiple binding sites for collagen and cell membrane proteins
84. Which of the following cells found in connective tissue have basophilic secretory granules that are released during a local inflammatory response?	A. Macrophages B. Plasma cells C. Eosinophils D. Mast cells	D	Secretes cytokines and growth factors , late innate immunity and chronic infections Production of antibodies in adaptive immunity Primary function is to kill helminthic and other parasitic invaders Undergoes degranulation (histamine, heparin) during hypersensitivity or allergic reactions
85. Using fluorescent-tagged antibodies, a malignant tumor of unknown origin was found to be positive for keratin intermediate filaments. From which of the following basic tissues did the tumor MOST likely originate?	A. Nervous B. Connective C. Muscle D. Epithelium	D	Intermediate filament: Glial fibrillary acid protein Intermediate filament: Vimentin Intermediate filament: Desmin Intermediate filament: Keratin
86. Which zone in the epiphyseal growth plate shows infiltration of blood vessels and invasion of the lacunae by osteoblasts?	A. Proliferation B. Hypertrophy C. Calcification	D	Isogenous group of chondrocytes → divide → secrete more Type II collagen → formation of columns of <u>stacked cells</u> Swollen chondrocytes with accumulated glycogen in cytoplasm • Zone where there is loss of chondrocytes by <u>apoptosis</u> • <u>Take note of empty spaces</u>

	D. Ossification		Zone of reserve cartilage Zone of proliferation Zone of hypertrophy Zone of calcified cartilage Zone of ossification
87. The homogenous appearance of hyaline cartilage is attributed to same refractory indices of the extracellular matrix and of which of the following collagen fibers?	A. Type II B. Type IV C. Type I D. Type III	<p>The ECM of the hyaline cartilage is made up mostly of Type II collagen → homogenous and semi-transparent in fresh state with “glass-like appearance”</p> <p>Type IV: Floor (sounds like four)</p> <p>A - Sheet forming in the basal lamina (epithelial cell support)</p> <p>More abundant in fibrocartilage which is arranged in either in regular or irregular configuration</p> <p>More common in reticulocytes which can be found in lymph node and spleen</p>	
88. Due to the presence of perichondrium, which of the following cartilages has a better regenerative capacity when injured?	A. Articular cartilage B. Intervertebral disc. C. Epiglottis D. Symphysis pubis	<p>Hyaline cartilage</p> <p>Fibrocartilage</p> <p>Elastic cartilage</p> <p>C Fibrocartilage</p> <p>- NO PERICHONDRIUM</p> <p>- MNEMONIC: Fudge I love Apple Pie</p> <p>- Fibrocartilage: Intervertebral discs, Attachment of certain ligaments, Pubic symphysis (symphysis pubis)</p>	
89. Which of the following cells secretes the osteoid?	A. Osteoblast B. Osteoprogenitor cell C. Osteocyte D. Osteoclast	<p>A Secrete organic bone matrix (osteoid) and osteocalcin and alkaline phosphatase</p> <p>Mesenchymal stem cells, produces new osteoblasts</p> <p>Maintains the calcified matrix and detects mechanical stresses to direct bone remodeling</p> <p>D Macrophage of the bone, secretes lysosomal enzymes to dissolve the hydroxyapatite crystals and digest matrix proteins</p>	
90. Which of the following statements is TRUE of the OSTEOCLASTS?	A. They line the periosteal surface. B. They have long dendritic processes. C. They are large and multinucleated. D. They are completely surrounded by bony matrix.	<p>C</p> <ul style="list-style-type: none">• PERIOSTEUM is a double layer of CT surrounding/ lines the outer bone surface• ENDOSTEUM - Internal surface of bones/ trabeculae <p>OSTEOCYTES are lined with dendritic processes within canalliculi</p> <p>OSTEOCLASTS - large, motile, multinucleated and vacuolated cells with a frothy cytoplasm</p> <p>Osteoblasts exclusive to the surface of bone matrix Osteocytes located within lacunae surrounded by bony matrix</p>	
91. Which of the following structures is BEST appreciated in a decalcified bone preparation?	A. Lamellae B. Cement line C. Canaliculi D. Osteocyte	<p>D</p> <p>Decalcified bone:</p> <ul style="list-style-type: none">• Cells fixed and inorganic matrix is removed by decalcification• Organic matrix cells and periosteum are appreciated in good detail• Lamellae and inorganic matrix (lacunae and canaliculi) are difficult to distinguish	
92. Which of the following histologically appears as a	A. External circumferential lamella	<p>C</p> <p>Located immediately beneath the periosteum</p>	

well-delineated circular structure composed of sheets of multiple concentric lamellae surrounding a central canal?	<p>B. Perforating canal C. Haversian system D. Interstitial lamella</p>	<p>Transverse canal that allows osteon to communicate with one another</p> <p>Found between osteons; remnants of partially destroyed osteons during bone growth & remodelling</p>
93.Which of the following statements BEST describes spongy bone?	<p>A. It is also called woven bone. B. It is covered with periosteum. C. It is found within marrow cavities. D. It constitutes 80% of total bone mass.</p>	<p>Histologic classification of bone: <ul style="list-style-type: none"> • Woven/Immature/Primary • Lamellar/Mature/Secondary </p> <p>Macroscopic/gross classification of bone: <ul style="list-style-type: none"> • Compact/Cortical <ul style="list-style-type: none"> - 80% of bone mass - Solid portion that covers the exterior of the bone - Forms shaft of long bone • Cancellous (spongy, trabecular, medullary) <ul style="list-style-type: none"> - 20% of bone mass - Covered by endosteum - Inferior of bone </p>
94. The ability of the cartilage to serve as a shock absorber is due to its high content of the water bound to which component of the extracellular matrix?	<p>A. Chondronectin B. Elastic fiber C. Glycosaminoglycans D. Collagen fiber</p>	<p>A multiadhesive glycoprotein for adherence of chondrocytes to the ECM</p> <p>Have rubberlike properties that allow tissue containing these fibers, such as stroma of the lungs, to be stretched or distended and return to their original shape</p> <p>Key element of all connective tissue, as well as epithelial basement membranes and the external laminae of muscle and nerve cells</p>
95. Which of the following tissues is capable of appositional growth but NOT interstitial growth?	<p>A. Articular hyaline cartilage B. Compact bone C. Elastic cartilage D. Fibrocartilage</p>	<p>Interstitial growth</p> <ul style="list-style-type: none"> • Seen in articular cartilage and epiphyseal plates • Important in cartilaginous regions within long bones for increasing the length
96. A 33 year old male landed backward on his left shoulder when pushed by his opponent while playing basketball. On examination, there was gross deformity at the shoulder with a firm round mass anterior to the glenohumeral joint. He complains of pain only when trying to move the arm. What is the most likely injury?	<p>A. Fracture B. Infection C. Dislocation D. Tumor</p>	<p>Broken bone</p> <p>The invasion and growth of germs in the body</p> <p>An abnormal growth of body tissue</p>
97. A 40 year old female tripped and fell on her outstretched right hand. There was noted wrist swelling and pain prompting ER consult. When viewed from the side, the forearm and hand appears like a dinner fork facing downwards. This most likely results from a fracture of which bone?	<p>A. Radius B. Scaphoid C. Ulna D. First metacarpal</p>	<p>Dinner fork deformity: Fractured right distal radius, dorsally displaced</p> <p>One of the hand bones</p>
98.De Quervain's tenosynovitis (inflammation of the tendons and synovial sheath) was considered in a 25 year old male patient with wrist pain of 3 days duration. Which of the following clinical tests will support this diagnosis?	<p>A. reverse Phalen's test B. Phalen's test C. Finkelstein's test D. Tinel's test</p>	<p>Diagnostic test for CTS</p> <p>Finkelstein maneuver - helpful test in diagnosing De Quervain's tendonitis</p> <p>For CTS also</p>
99.An abscess developed from a neglected laceration on the volar surface of the thumb in a diabetic female. This infection will MOST LIKELY spread to which of the following compartments/spaces?	<p>A. Central B. Hypothenar C. Carpal tunnel</p>	<p>No significant structure pass through</p> <p>Ulnar nerve injury: Atrophy of hypothenar compartment/claw hand deformity</p> <p>Median nerve injury</p> <p>Median nerve innervation: 5 intrinsic muscles, thenar half of the palm and palmar skin</p>

	D. Thenar	
100. Which of the following conditions can bring about trigger finger?	A. Radial nerve injury B.Inflammation of the extensor tendons C.Ulnar nerve injury D.Inflammation of flexor tendons	Inability to extend due to paralysis of extensor muscle of forearm Manifestation: Wrist drop, atrophy of triceps brachii and muscles of posterior compartment, loss of sensation over lateral & posterior arm and dorsal surface of lateral 3 ½ digits D Anatomy involved in De Quervain's Tenosynovitis: Extensor pollicis brevis (EPB) & abductor pollicis longus (APL) Guyon Tunnel Syndrome - entrapment of ulnar nerve (supplies the little finger/fifth digit) Anatomy involved in trigger finger/nodular tenosynovitis: Tendons, ligaments, tendon sheath (specifically FLEXOR tendons (flexor tendons get trapped in the tendon sheath due to a nodule)