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Dermatomes 2007-2

TOPIC: Discussion: upper limb sensation _____ **NUMBER: 4** _____

OPENING QUESTION	Please demonstrate on yourself the dermatomes of the UL	**COMMENTS**
POINTS REQUIRED	1 Indicate on self C4,C5, C6, C7, C8, T1,T2	Need to say right levels+areas
	2	
	3	
PROMPTS	Please be more accurate	
SECOND QUESTION (if needed)	Please describe the cutaneous innervation of the hand	Mention 3 nerves + reasonable distribution
POINTS REQUIRED	1 Median nerve – hand T/IF/MF/RF & thenar side	
	2 Ulnar nerve – hand LF/RF & hypothenar side & dorsal	
	3 Radial nerve – dorsal hand & thumb	
	5	
	6	
PROMPTS	Cutaneous innervation of rest of upper limb as supplemenary	

Lymphatics 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1:	Describe the drainage of the superficial lymphatics of the upper limb?	Superficial lymphatics originate from lymphatic plexuses in the hand & ascend mostly with the superficial cephalic & basilar Vs. Some accompanying the basilar v enter the **cubital** LNs. Efferent vessels from here drain -> **humeral** (lat) axillary LNs (-> **central** axillary LNs -> **apical** axillary LNs). Most travel with cephalic v and enter the **apical** axillary LNs, but some enter the **deltopectoral** LNs earlier.	Travel with superficial veins **and** drain into axillary LNs to pass.
Question 2:	Describe the drainage of the deep lymphatics of the upper limb.	Deep lymphatics accompany the major deep vs in the UL & terminate in the **humeral** (lat) axillary LNs. These drain -> **central** axillary LNs - > **apical** axillary LNs -> supraclavicular LNs -> R & L subclavian lymphatic trunks.	Travel with deep veins **and** drain into axillary LNs to pass.
Question 3:	How do the right & left subclavian lymphatic trunks drain?	The R subclavian lymphatic trunk may be joined by R jugular & bronchomediastinal trunks to from the R lymphatic duct **or** it may enter the right venous angle (junction of int jug & subclavian vs) independantely. The L subclavian lymphatic trunk joins the thoracic duct.	R subclavian LT -> right venous angle **and** the L subclavian LT -> thoracic duct.

Median nerve 2008-1

OPENING QUESTION	**Identify on this specimen the median nerve.**	COMMENTS
POINTS REQUIRED	1 Identification of median nerve (numbered **16**)	Correct = pass
PROMPTS	Indicate features of a nerve versus tendon or vessel	Prompt = no pass
SECOND QUESTION	**Describe on the course of the median nerve in the forearm, using the photograph where able?**	At least all of 2, 4 and 5 to pass
POINTS REQUIRED	1 Emerges from **cubital fossa**	
	2 Passes between two heads of **Pronator teres (PT)**	
	3 Descends deep to **Flexor digitorum superficialis (FDS)** (numbered **12**) closely attached to fascial sheath	
	4 Continues distally between **FDS** and **Flexor digitorum profundus (FDP)**	
	5 Becomes superficial at wrist, passing between tendons of FDS and **Flexor carpi radialis (FCR)** (numbered **8**); deep to **Palmaris longus (PL)** if present	
	6 Passes deep to Flexor retinaculum	
PROMPTS	If state a structure, get candidate to identify it on the specimen.	Identify **FDS** and **FCR**
THIRD QUESTION (if needed)	**What are the structures supplied by the median nerve?**	8 structures to pass
POINTS REQUIRED	1 No branches in arm	
	2 **Articular branches** to elbow joint	
	3 **Muscular branches** to PT; FCR; PL; FDS	
	4 **Anterior interosseus nerve** to PQ; FPL; ½ FDP; articular branches to wrist joint	
	5 **Palmar cutaneous branch** to skin of lateral part of palm and adjacent thenar eminence	Numbered **18**
	6 **Recurrent branch** to thumb muscles (APB; OP; FPB)	Numbered **19**
	7 **Palmar digital branches** to lumbricals 1,2 and cutaneous supply	Numbered **17**
PROMPTS	What muscles are supplied by the median nerve? Identify the numbered branches – what do they supply?	

COMMENTS Must pass questions 1 & 2 to pass overall

Median nerve 2007-1

OPENING QUESTION	Demonstrate the course of the median nerve in the forearm and wrist	**COMMENTS** **Must ID the median nerve + 3/4 muscles/tendons to pass**
POINTS REQUIRED	1 Exits cubital fossa between 2 heads of pronator teres	
	2 Runs distally adherent to posterior aspect of FDS	
	3 At wrist emerges between FCR & FDS, just deep + lateral to palmaris longus	
	4. Deep to the flexor retinaculum	
PROMPTS	Show me the median nerve at the wrist. Name the tendons adjacent to it	
SECOND QUESTION (if needed)	What muscles does the median nerve supply in the forearm and hand?	Must address muscular and sensory components
POINTS REQUIRED 3 to pass	1 PT, FCR, PL,FDS + elbow + prox radio-ulnar joints	
3 to pass	2 Anterior interosseous branch: FDP (index+middle finger bellies), FPL, PQ, inf radio-ulnar, wrist + carpal joints	
	3 Palmar branch- supplies skin over thenar eminence	
	4 Radial 31/2 digits sensation	
	5 Radial 2 lumbricals	
	6	
PROMPTS		
THIRD QUESTION (if needed)		
	5	
	6	
PROMPTS		

Median nerve 2005-2

TOPIC: Median Nerve: Position & distribution distal to elbow NUMBER: 2.5 _____

FIRST QUESTION	**Describe the course of the median nerve distal to the elbow**	COMMENTS
POINTS REQUIRED	1 Leaves cubital fossa between 2 heads of pronator teres	*
	2 Passes deep to fibrous arch of flex dig superficialis. It is adherent to the deep surface of this muscle as it runs distally.*	
	3 Above wrist it becomes more superficial between tendons of flex carpi radialis and flex dig superficialis *	
	4 Lies behind and slightly lat to tendon of palmaris longus *	
	5 Passes under flexor retinaculum between FDS tendon to middle finger and FCR tendon to enter hand *	
SECOND QUESTION	**What are the branches of the median nerve distal to the flexor retinaculum and what do they supply?**	
POINTS REQUIRED	Gives muscular branch (recurrent) which curls proximally around distal border of flexor ret. to supply thenar* mm.	*essential
	Medial branch Divides again into 2 and supplies the palm skin*, the cleft and adjacent sides of ring and middle fingers and the cleft and adjacent sides of middle and index fingers. This latter branch also supplies the second lumbrical Lateral branch Supplies palmar skin, radial side of index, the whole of the thumb and it's web on the palmar surface and the distal part of the dorsal surface. The branch to the index finger supplies the first lumbrical. These palmar digital branches also supply the nail beds and distal dorsal skin of the digits	*essential to demonstrate cutaneous distribution
PROMPT	Demonstrate the sensory distribution of the median nerve in the hand.	

Median nerve 2005-2

TOPIC: Median Nerve: Position & distribution distal to elbow NUMBER: 1.1 _____

OPENING QUESTION	**Identify the muscles that make up the boundaries of the cubital fossa and its contents.**	
	Pronator teres, medially; brachioradialis laterally, brachialis, base, medial to lateral Contents: median nerve, brachial artery, biceps tendon	**2/3 muscles and 3 contents in correct relationship**
SECOND QUESTION (if needed)	**Describe the course of the median nerve between the elbow and the wrist**	
POINTS REQUIRED	1 Leaves cubital fossa between 2 heads of pronator teres	*4/5 to pass
	2 Passes deep to fibrous arch of flex dig superficialis. It is adherent to the deep surface of this muscle as it runs distally.*	
	3 Above wrist it becomes more superficial between tendons of flex carpi radialis and flex dig superficialis *	
	4 Lies behind and slightly lat to tendon of palmaris longus *	
	5 Passess under flexor retinaculum*	
THIRD QUESTION	Describe the branches of the median nerve in the forearm and what they supply	
	1 Muscular branches near the elbow 1) Branch to pronator teres* 2) Branch to flexor carpi radialis* 3) Branch to palmaris longus* 4) Branch to flexor dig superficialis *(nb. Branch to index finger part of this mm arises in middle of forearm)	To Pass: Anterior interosseous + palmar cutaneous + 5 of 7 muscles supplied.
	2 Branches to elbow joint and proximal radio-ulnar jt*	
	3 Anterior interosseus branch Given off deep to FDS. Runs down with aa of same name Supplies Flex dig profundus (usually bellies for index and middle fingers) Flex poll longus Pronator quad Inferior radio-ulnar joint Wrist and carpal joints	
	4 Palmar branch*	
	Given off in distal forearm, runs above flex ret, supplies skin over thenar muscles	
PROMPTS		

Radial nerve 2007-2

OPENING QUESTION	Describe the course of the radial nerve in the upper limb	COMMENTS
POINTS REQUIRED	1 C5-7 branch of posterior cord	
	2 Leaves axilla	
	3 Oblique across humerus	
	4 Heads triceps (bet long and med heads)	
	5 Spiral groove	
	6 Pierce intermuscular septum	
	7 Brachialis / brachioradialis – lies between	
	8. Ext carpi radialis longus	
PROMPTS		
SECOND QUESTION (if needed)	Name the major branches of this nerve in the arm	
POINTS REQUIRED	1Triceps – long head, lat head, med head	
	2 Post cutaneous	
	3 Anconeus	
	4 lat Cut n of arm	
	5 Brachioradialis	
	6 Ext carpi radialis longus	
	7. Lat brachialis	
	8. Elbow joint	
	9. Post interosseous: ECRB and supinator in cubital fossa Ext compartment of forearm ED, EDM, ECU APL, EPL, EPB Ext indicis	
PROMPTS		

Radial nerve 2004-2

TOPIC: Dermatomes _____ **NUMBER: 2.4** _____

OPENING QUESTION	On your own arm, demonstrate the dermatomes of the upper limb	**COMMENTS**
POINTS REQUIRED	1. require C4 at shoulder to T2	
	3	
	4	
	5	
	6	
	7	
PROMPTS	What cervical and thoracic levels supply skin of the upper limb?	
SECOND QUESTION (if needed)	What functional deficit results from a radial nerve injury in the mid arm and explain why?	
POINTS REQUIRED	1 Elbow extension preserved – medial and long head triceps	
	2. wrist drop – inability to extend wrist and MCP jnts of fingers and thumb of muscles of common extensor origin: - extension BR, ECRL, ECRB, ED, EDM, ECU. + deep extensors Aconeus, supinator, ABPL, EPB, EPL, EI	
	3. Inter phalangeal jnts maintained due to lumbricals and interossei	
	4. sensory loss usually small over 1st interosseous space (radial 2/3 dorsum of hand)	
	5	
	6	
PROMPTS	What would you expect at the elbow? What muscles are supplied by radial nerve? What is its sensory distribution?	
THIRD QUESTION (if needed)		
POINTS REQUIRED	1	
PROMPTS		

Ulnar nerve 2017-2-C

Stem: Moving on to Anatomy. Following reduction, he complains of numbness in his fingers			
Question 3 Ulnar nerve **Subject:** Anatomy (Discussion) LOA: 1	Describe the course of the ulnar nerve around the elbow.	**Passes through the elbow posterior to the medial epicondyle of the humerus**.	**Bold**
	What clinical findings would you expect if the ulnar nerve is injured at the elbow?	Sensory, loss of sensation- • **Medial half of the palm -** Palmar cutaneous branch • **Medial one and a half fingers, and the associated dorsal hand area -** Dorsal cutaneous branch • **Palmar surface of the medial one and a half fingers** - Superficial branch	sensory
	Prompt: What motor findings would you expect *What does ulnar nerve supply?*	Motor, unable to- • **FLEX and ADDUCT hand at wrist -** Flexor carpi ulnaris • **FLEX Distal interphalangeal joints of 4th and 5th digits -** Flexor digitorium profundus III and IV • **FLEX and ABDUCT 5th MCPJ -** Hypothenar muscles: Abductor digiti minimi, Opponens digiti minimi, Flexor digiti minimi • **ADDUCT thumb -** Adductor pollicis, half of flexor pollicis brevis • **ABDUCT and ADDUCT 4th and 5th fingers -** Interosseous muscles, 3rd and 4th lumbricals	2 of 5 motor
	How would you differentiate an ulnar nerve lesion at the elbow from one at the wrist? (Bonus question)	More pronounced claw hand if lesion is more distal as FCU and FDP preserved.	Concept to pass

Ulnar nerve 2012-1

Question 4 Photo: upper limb, nerves of hand-motor and sensory Pg 163 McMinn's LOA: 1	a) Identify the ulnar nerve in this photo and adjacent structures	**25. ulnar n** 23. ulnar artery 9. flexor carpi ulnaris 26. deep branch of ulnar nerve 11. flexor digitorum profundus **16. median n**	Ulnar n and Median n and 2 other structures to pass
	b) Demonstrate where sensation changes may occur if the ulnar nerve is injured in the forearm	**Palmar and dorsal aspects of 1 and a half ulnar fingers**, adjacent palmar and dorsal aspects of hand and ulnar aspect of wrist	Finger distribution to pass

Venous drainage 2010-1

Question 4: Photo: Upper Limb	Describe the superficial venous drainage of the upper limb. Use this photograph if you need to. PROMPT: identify the veins first. Once identified, track distally and describe proximal path	Hand: dorsal and palmar networks drain to **cephalic** (anterolateral) and **basilic** (posteromedial, around medial epicondyle). Connected in cubital fossa by **median cubital**. Basilic goes deep distal/middle 1/3s of arm with axillary artery to become axillary vein. Cephalic in deltopectoral groove, deep through DP fascia, inferior to clavicle.	Bold to pass

Venous drainage 2003-1

TOPIC: VENOUS DRAINAGE UPPER LIMB _____ **NUMBER: 2** _____

OPENING QUESTION	CAN YOU DESCRIBE THE VENOUS DRAINAGE OF THE UPPER LIMB	**COMMENTS**
POINTS REQUIRED	1. SUPERFICIAL & DEEP	4/5 TO PASS
	2 SUPERFICIAL: DORSAL VENOUS ARCH TO CEPHALIC & BASILIC VV	
	3 PALM DRAINS DORSALLY	EXTRA
	4 DEEP: CORRESPONDS TO ARTERIES	
	5 STARTS AS VENAE COMITANTES	
PROMPTS	FOR DETAILS OF COURSE OF CEPHALIC VEIN	
SECOND QUESTION (if needed)		
POINTS REQUIRED		
	4	
	5	
	6	
PROMPTS		

Axilla 2011-2

Question 4 **Photo: Axilla** **LOA: 1**	*i. Please describe the boundaries of the axilla*	**Lots of structures removed**, and some candidates will struggle..need good description of 4/6 **Base**: gone! Ax skin, fascia etc **Apex**: cervicoaxillary canal, cant be seen, passage betw neck and axilla **Ant wall**: gone! Pec major/minor and clavipec fascia. **Post wall**: Scapula and subscap on its surface, and inf by lat dorsi and teres major **Lat wall**: cant be seen, inter tub groove in humerus Med wall: thoracic wall, serratus ant	General description of all required
	ii. What are the contents of the axilla?	**Axillary artery**, in 3 parts defined by pec minor **Axillary vein**:formed brachial and basilic, becomes sublav at lat border 1st rib **Brachial plexus** **Axillary lymph nodes**: pectoral, subscap, humeral, central, apical **Fat**	**3/5 to pass**

Axilla 2011-2

Question 4 **Photo: axilla/brachial plexus** **LOA: 1**	*i. Please identify the muscles in this photo of the axilla*	2 biceps, 3 coraco-brachialis, 23 subscapularis, 4 Deltoid, 9 Lat Dorsi, 24 Teres major, 10 long head triceps, 15 medial head triceps, 19 pec minor	**5 to pass**
	ii. Identify the components of the brachial plexus.	**26 Ulnar Nerve,** 13 med brachial (cutaneous n of arm), 14 med antebrachial (cutaneous n of forearm), 18 Musculocutanoeus nerve, **21 Radial nerve**, 1 Axillary nerve, **17 Median Nerve,** 25 Thoracodorsal Nerve, **20 Posterior cord, 12 Medial Cord, 6 Lateral cord.**	**Bold to pass**
	iii. What are the terminal branches of medial cord?	Ulnar, medial cutaneous nerves of arm and forearm (medial brachial and medial ante-brachial), medial pectoral nerve, 16 medial root of median nerve	**3/5 to pass.**

Brachial Plexus 2017-1-D

Stem: Moving onto Anatomy. She has upper limb weakness. Here is a photo of the right brachial plexus.			
Question 2 Brachial plexus (Mc Minns, Pg 142, 7th Ed) **Subject:** Anat LOA: 1	a) Identify the components of the brachial plexus	Axillary nerve (1), Lateral cord (6), Lat root median n (8), Medial cord (12), Med cut n of arm (13), Medial cut n of forearm (14), Medial root median n (16), Musculocutaneous (18), Median n (17), Posterior cord (20), Ulnar n (26)	Requires 6 in total
	b) What are the nerve roots that make up the posterior cord of the Brachial Plexus?	**C5,6,7,8 and T1**	Bold to pass
	c) What are the terminal branches of the posterior cord and what do they supply?	**Axillary nerve** (C5, 6) • Joint - glenohumeral (shoulder) • Muscles – deltoid and teres minor • Skin over inferior aspect of deltoid **Radial nerve** (C5-T1) • All muscles in the posterior compartment of arm and forearm • Skin over postero, inferolateral arm, posterior forearm and dorsum of hand lat to ring finger Other branches are • Upper scapular n C5 supplies subscapularis • Lower subscapular n C6. Supplies inferior part of subscapularis and teres major muscle • Thoracodorsal n C6,7,8 supplying Lat dorsi	Both nerves and one example of supply for each

Brachial Plexus 2016-2-A

Stem: An 80-year-old woman presents with pain radiating down her arm following a fall. We will start with anatomy.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Brachial plexus (photo, McMinn's) **Subject:** Anatomy LOA1	Here is a photo of the right brachial plexus. 1) Please identify its main features.	Deltoid (4) Biceps (2) Cords - Lateral (6), posterior (20) & medial (12) **Musculocutanous nerve (18)**, Axillary nerve (1), **Radial N (21)** **Median N (17)** **Ulnar N (26)**	Bold to pass
	PROMPT: Please list, and identify where you can, the branches of each cord.	Lateral cord-> musculocutaneous N, lat pectoral N + **lateral root of median nerve (8).** Post C -> Upper (27) +lower (11) subscapular Ns, the thoracodorsal N(25), axillary N(1) + radial N(21) Medial C->**the medial root of the median N (16),** the ulnar N, the medial cutaneous nerve of the arm (13) & forearm (14), the medial pectoral nerve.	To pass – list at least 2 branches from each cord & identify those in bold
	2) What does the musculocutaneous N supply?	<u>Motor supply</u>-> 3 muscles of ant compartment of the arm (biceps, brachialis & coracobrachialis) <u>Sensory supply</u> -> skin over the lat aspect of the forearm (becomes the lat cutaneous N of the forearm after giving off its motor supply)	To pass – 1 motor & sensory distribution

Brachial Plexus 2016-1-A

Stem: A 60 year old alcoholic man is brought to the Emergency Department after being found slumped in a chair. He is noted to have a wrist drop.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Brachial Plexus (photo) **Subject:** Anat LOA: 1	Here is a photo of the right brachial plexus. 1) Please identify the nerve most likely injured.	**Radial nerve (21)**	**Bold to pass**
	2) Please identify some of the other numbered nerves in the plexus. Prompt: please show us the median and ulnar nerves.	Axiliary nerve (1), Lateral cord (6), lat root median n (8), medial cord (12), medial cut n of arm (13), medial cut n of forearm (14), Medial root of median n (16), **Median n (17),** Posterior cord (20), **Ulnar n (26).**	**Requires median and ulnar n to pass. 4 in total incl these 2**
	3) Apart from wrist extensor weakness, what other functions may be lost with a radial nerve lesion in the axilla?	Finger extension and sensory loss over radial side of dorsum of hand. **Need at least one of these to pass**	**Need to name and identify to pass.** Can prompt by asking what nerve innervates the extensor compartment of the forearm.

Brachial Plexus 2010-1

Question 4: Photo: Brachial Plexus	a) Identify the components of the brachial plexus as shown in this photo. The vessels have been removed. PROMPT: Direct candidates to start at superior aspect.	**Posterior Cord** **Radial Nerve (Terminal br)** Axillary Nerve (Terminal br) Thoracodorsal n Upper and Lower Subscapular nn **Lateral Cord** Musculocutaneous n (terminal br) Lat root of median n (terminal br) **Medial Cord** **Ulnar nerve (Terminal Br)** Med root of median nerve (terminal br) Medial cut nn of arm and forearm **Median nerve**	Identify – 3 cords, 3 bolded branches and 2 others to pass
	b) Identify the muscles visible in this photo	Surrounding muscles: Deltoid, biceps, coracobrachialis, pec minor, triceps, lat dorsi, subscapularis, teres major	Identify 3 muscles to pass

Brachial Plexus 2007-2

TOPIC: DISCUSSION: BRACHIAL PLEXUS _____ **NUMBER:** _4_____

OPENING QUESTION	What is the brachial plexus and how is it formed?	**COMMENTS**
POINTS REQUIRED	1 Major nerve network supplying the upper limb, extends from neck to axilla.	Start proximally to distal
	2 Results in the formation of multisegmental peripheral nerves.	
	3 Initially formed by the union of the anterior rami (roots) lower cervical (C5-8) and first thoracic nerves.	
	4 These roots unite to form 3 trunks; superior, middle and inferior	
	5 Each trunk divides into anterior and posterior divisions	
	6 These division then form 3 cords: Anterior divisions of superior and middle trunks for the lateral cord, anterior division of inferior trunk forms medial cord, posterior divisions of all 3 trunks unite to form posterior cord	Need to know roots,trunks,divisions, cords to pass
Optional	7 Major peripheral nerves supplying upper limb form from these cords. Lateral cord gives rise to lateral pectoral n, musculocutaneous n and lateral root of median n. Medial cord gives rise to medial root median n, medial pectoral n, medial cutaneous n of arm, medial cutaneous n of forearm and ulnar n. Posterior cord gives rise to upper subscapular n, lower subscapular n, thoracodorsal n, axillary n, and radial n.	Name at least medial and lateral roots median n, axillary n, radial n and ulnar n.
PROMPTS	1. No need to describe supraclavicular branches of brachial plexus. 2. Would you prefer to describe the formation of the brachial	

Brachial Plexus 2004-2

TOPIC: Brachial Plexus _____ **NUMBER: 1.5** _____

OPENING QUESTION	The anterior wall of the axilla has been removed. Show us the components of the p	**COMMENTS**
POINTS REQUIRED	1 Subscapularis (17)	2 of 3 to pass
	2 Teres Major (18)	
	3 Lattisimus Dorsi (19)	
	4	
	5	
	6	
	7	
PROMPTS	Brachial Plexus / Begin proximally and work distally	
SECOND QUESTION (if needed)	What are the branches of this structure? [identify medial cord - 3]	
POINTS REQUIRED	1 Medial pectoral nerve	4 of 5 to pass
	2 medial root median nerve (9)	
	3 medial cutaneous nerve of the arm (13)	
	4 medial cutaneous nerve of the forearm (15)	
	5 ulna nerve (14)	
	6	
PROMPTS	The Axillary Artery has been removed	
THIRD QUESTION (if needed)	What anatomical structures are associated with the various components of the brachial plexus	
POINTS REQUIRED	5 roots - behind scalenus anterior	
	3 trunks – lower part of posterior triangle	
	A/P divisions - behind clavicle	
	3 cords - outer border first rib (beginning of axilla)	
	cords enter above 1st part of artery, approach and embrace its 2nd part, give off branches around its 3rd part	
PROMPTS		

Clavicle 2012-2

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: **Bone** Clavicle LOA: 2	a) Identify and describe the features of this bone *Prompt- what other bones does it articulate with?*	Name and side bone Medially- **sternal end,** articulates with manubrium Laterally- **articulates with acromion** Inferiorly-conoid tubercle and trapezoid line, for coracoclavicular ligament; subclavian groove; Impression for the costoclavicular ligament	All bold and 3 other features
	b) What structures stabilise the acromioclavicular joint *Prompt – what ligaments?*	Ligaments of the joint **Acromioclavicular ligament** **Corocacoclavicular ligament** – conoid and trapezoid components	Name both ligaments

Clavicle 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1:	This is a right or left clavicle. Demonstrate the muscular attachments this bone	Deltoid – lateral 1/3 anterior Trapezius – lateral 1/3 posterior Pectoralis Major – medial 1/3 anterior - inferior Sternocleidomastoid – clavicular head, medial 1/3 ant - superior Subclavius – inferior, middle 1/3 (medial according to text)	Name all except subclavius **and** locate trapezius as posterior, SCM as anterior and deltoid as lateral attachments.
Question 2:	What are the anatomical relations of the medial third of the clavicle.	Medial: Sternoclavicular joint, manubrial notch Posterior: First rib, brachiocephalic vein (medial to scalenus anterior), internal jugular vein, subclavian vein (over scalenus anterior), subclavius, phrenic nerve (more posterior) Apical pleura, thoracic duct (left) Anterior/superior / inferior: Subcutaneous tissue, skin	Brachiocephalic **or** Subclavian vein **and** name 2 others to pass
Question 3:	Describe the course of the subclavian vein	Becomes subclavian vein from axillary vein medial to the outer border of the first rib. Courses medially posterior to clavicle, superior to flat section of first rib (groove). Lies immediately anterior to Scalenus anterior which separates it from the Subclavian artery. Becomes brachiocephalic vein at medial border of Scalenus Anterior when it joins the IJV.	Originates from Axillary vein **and** becomes Brachiocephalic vein **and** demonstrates course posterior to clavicle to pass.

Rotator cuff 2013-2-B

Question 4 ANATOMY LOA: 1	*"Moving on, the patient has limitation of shoulder movement."* What muscles are called the "rotator cuff muscles?" Demonstrate or describe the origins and insertions of the rotator cuff muscles. Note that the model has no rotator cuff muscles. What are the actions of the rotator cuff muscles?	**Subscapularis** Origin – Medial 2/3 costal surface of scapula Insertion – fuses with capsule of shoulder joint and into lesser tuberosity of humerus Nerve – Upper and lower subscapular **Teres minor** Origin – Dorsal surface axillary border of scapula Insertion – Lower facet greater tuberosity humerus Nerve – Posterior branch axillary N **Supra spinatus** Origin – medial2/3 supraspinous fossa scapula Insertion – Upper part of greater tuberosity humerus Nerve – Suprascapular nerve C5,6 **Infraspinatus** Origin – Medial 2/3 infraspinous fossa and deep surface infraspinous fascia which covers muscle. Insertion – Central facet greater tuberosity humerus Nerve – Supra scapular **Supraspinatus** – **initiates abduction** and other muscles hold humeral head down **Subscapularis** – **medial rotation** of humerus **Infraspinatus** and **teres minor** –**lateral rotators** of humerus Supraspinatus – **abducts shoulder** All muscles **stabilise the shoulder joint** by bracing humeral head against glenoid (tendons fuse with capsule)	Must know all 4 to pass Must have knowledge about origins, insertions and actions of 2/4.

Rotator cuff 2012-1

Question 4 Photo upper limb: Rotator cuff muscles-actions and nerve supply LOA: 1	a) Identify the rotator cuff muscles in this image	**Supraspinatus Infraspinatus Teres Minor Subscapularis**	All bold
	b) What are the actions of the rotator cuff muscles?	They form a musculotendinous structure around the shallow glenohumeral jt, protecting the jt and gives it **stability.** **Supraspinatus – initiates shoulder abduction** **Infraspinatus and teres minor-lateral arm rotation** **Subscapularis- medial arm rotation**	Joint stability plus one bold
	c) What are their innervations?	Supraspinatus- **Suprascapular n** (C4,C5,C6), Infraspinatus- **Suprascapular n** (C5,C6), Teres minor- **Axillary n** (C5,C6) Subscapularis- **Upper and lower subscapular n**(C5,C6,C7)	2/4 required

Rotator cuff 2006-2

1.Bone – scapula and humerus rotator cuff, origins, insertions, actions	1. Demonstrate on these bones the attachments and insertions of the muscles that form the rotator cuff .	**1. subscapularis:** (n=upper and lower subscapular nerves) O= medial 2/3 costal surface scapula & intermuscular septa I= by tendon which fuses with capsule shoulder jnt into lesser tubercle humerus 2. **teres minor** (N= posterior branch axillary N) O=elongated oval area dorsal surface axillary border scapula I= lower facet greater tubercle humerus 3. **supraspinatus** (N= suprascapular n. C5,6) O= medical 2/3 supraspinous fossa scapula I = smooth facet upper part greater tubercle humerus 4. **infraspinatus** (N =suprascapular N) O= medial 2/3 infraspinous fossa (& deep surface infraspinous fascia which covers muscle) I=smooth area central facet greater tubercle humerus	**Prompt:** What are the rotator cuff muscles ?	
	2. What is the action of the rotator cuff muscles?	1. stability to shoulder joint by brace head humerus against glenoid cavity (tendons fuse with capsule jnt) 2.supraspinatus initiates abduction and other rotator cuff hold head humerus down 3.& allow fixing upper end humerus during action wrist 4. subscapularis as prime mover is med rotator humerus 5. infraspinatus & teres min= lat. rotator of hum. 6. supraspinatus abduction shoulder		

Scapula 2016-2-D

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Scapula (bone) **Subject:** Anatomy LOA: 1	a. Identify the main features of this bone b. Demonstrate on this bone the attachments of the scapulohumeral muscles *Prompt if needed: what are the rotator cuff muscles?**	1. **Glenoid cavity, spine, supra & infraspinous fossae, subscapular fossa, acromion & coracoid process** Suprascapular notch, supra & infraglenoid tubercles, deltoid tubercle, inf. angle, med. & lat. border 2. **Deltoid – acromion & spine of scapula** ***Supraspinatus – supraspinous fossa** ***Infraspinatus – infraspinous fossa** *Teres minor – middle part lat. border Teres major – post. surface inf. angle ***Subscapularis – subscapular fossa**	Bold to pass Bold to pass

Scapula 2012-2

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: **Bones** Scapular LOA: 1	Identify the anatomical landmarks of this bone	**Glenoid, spine, supra/infra spinus fossae, subscap fossa, coracoid and acromion processes** Suprascap notch, supra/infraglenoid tubercles, inf angle, med/lat border	Correct side and 6 of 7 of those in bold And 2 of the rest
	Demonstrate the muscular attachments on the posterior surface	Superior - Lev scap, inf belly o-h, biceps/coracobra Medial – Lev scap, rh min/maj, lat dorsi Lateral – long hd triceps, teres min/maj, lat dors **Supraspinatus** and **Infraspinatus** Spine - **Trapezius** (sup) and **Deltoid** (inf)	3 of 4 in bold plus 3 others
	What are the muscles involved in ABduction of the shoulder joint	Intitiated by supraspinatus, then **deltoid**	Must know deltoid

Scapula 2005-1

TOPIC: Scapula _____ **NUMBER: 3-3** _____

OPENING QUESTION	Identify the major bony features of this bone	**COMMENTS**
POINTS REQUIRED	1 Spine & Acromium	6 of 10 to pass
	2 Supraspinous & Infraspinous fossa	
	3 Subscapular fossa & Glenoid	
	4 Tubercle for Long head triceps	
	5 Tubercle for Long Head Biceps	
	6 Coracoid process & Supraspinal notch	
	7	
PROMPTS		
SECOND QUESTION (if needed)	If needed – Which muscles comprise the rotator cuff?	All 4 named to pass
POINTS REQUIRED	1 Subscapularis (medial 2/3 of subscapular fossa) to lesser tuberosity	
	2 Supraspinatus(medial 2/3 supraspinous fossa) to upper greater tuberosity	
	3 Infraspinatus (infraspinous fossa) to middle greater tuberosity	
	4 Teres Minor (upper lateral border) to lower greater tuberosity	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED	1	
	2	
PROMPTS		

Shoulder 2017-2-B

Stem: Moving on to Anatomy. He has pain from bony metastases in his shoulder.			
Question 5 Rotator Cuff **MODEL ;** Articulated Shoulder joint **Subject**: Anatomy LOA: 1 Pg. 700-705 Moore's Anatomy 7th Edition	a) Identify the major bony features of the scapula using this model.	a) • **Subscapular fossa** • **Glenoid cavity** • **coracoid process,** • **acromion** • facet for clavicle • **Supraspinous fossa** • Suprascapular notch • Spine of scapula • **Infraspinous fossa** • neck of scapula • Deltoid tubercle of spine	Bold to pass
	b) Demonstrate the proximal attachments of the four rotator cuff muscles on the scapula	b) Supraspinatus – supraspinous fossa Infraspinatus – infraspinous fossa Teres minor – middle part lateral border of scapula Subscapularis – subscapular fossa	Must know all four
	c) What are the actions of these individual rotator cuff muscles?	c) Supraspinatus – abduction Infraspinatus – lateral rotation Teres minor – lateral rotation Subscapularis – medially rotates arm	3 of 4 minimum

Shoulder 2014-2-B

Stem: We will now move on to Anatomy. She has limited shoulder movement due to bony metastases.			
Question 4 Shoulder (bone /model) **Subject**: Anat LOA: 1	1. What are the articulating surfaces in the shoulder joint	Ball-and-socket synovial joint, Rounded **head of humerus**, Shallow **glenoid cavity of scapula**, deepened by labrum	Bold to pass
	2. What structures stabilise the shoulder joint?	Fibrocartilaginous glenoid labrum. Coraco-acromial arch, Anterior glenohumeral ligaments Coracohumeral ligament Transverse humeral ligament **Rotator cuff (SITS) muscles, Supraspinatus, Infraspinatus, Teres minor, Subscapularis**	Rotator cuff (3/4 muscles), plus 2 others to pass Need to show understanding that there are different elements that contribute to stability.
	3. What muscles are responsible for abduction and adduction of the shoulder joint?	Abduction -**Deltoid** (esp acromial part), **Supraspinatus** (initiates), + upward movement of scapula Adduction -**Pec major** and **lat dorsi** acting in concert, **Teres major** and **long head of triceps** (synergists)	Bold to pass 2/4 Bold to pass
	Bonus What muscles are responsible for the other movements of the shoulder?	<u>Flexion -</u>Pectoralis major (clav head), Deltoid (clav and anterior acromial parts), Coraco-brachialis (synergist) <u>Extension -</u>Spinal part of deltoid, Lat dorsi, teres major, long head of triceps (synergists) <u>Medial rotation-</u> subscapularis, pec major, lat dorsi, teres major, deltoid-clavicular part (synergists) <u>Lateral rotation -</u>infraspinatus, teres minor, deltoid- spinal part (synergists) <u>Circumduction</u>	
	Bonus: Outline the bursae of the shoulder joint.	Subscapular bursa- located between neck of scapula and subscap tendon. Protects tendon. Subacromial (subdeltoid) bursa -Between acromion, CA ligament and deltoid superiorly, and supraspinatus tendon and joint capsule inferiorly Facilitates movement of supraspinatus tendon	

Shoulder 2014-1-D

Stem: Moving onto **ANATOMY**			
Question 2 Shoulder Model **Subject:** Anatomy LOA: 1	(a) Identify the features on this model of a shoulder.	(a) Bony: **Humerus** / Humeral head **Scapula – coracoid process / acromion** / spine / body **Clavicle** Joints: **glenohumeral** and **acromioclavicular** Ligaments: **Coracoclavicular** – conoid part and trapezoid part – most important for stability AC joint **Acromioclavicular** –top of clavicle to acromion Glenohumeral ligaments – reinforce anterior part of capsule from glenoid labrum to humerus Tendons: **Long head of biceps tendon**	(a) Bold to pass
	(b) What anatomical structures confer stability to the shoulder joint?	• **Joint capsule** with fusion of the tendons of scapular muscles • Ligamentous: **glenohumeral and coracohumeral ligaments** • **Coracoacromial arch** superiorly created by coracoacromial ligament • **Deepening of glenoid cavity by glenoid labrum** • **Tendons** of long head of biceps and triceps	(b) 3/5 to pass
	(c) What structures can be damaged by shoulder dislocation? (Prompt for ax nerve)	(c) Joint capsule and glenoid labrum damage results in recurrent dislocation **Axillary nerve** lies below joint capsule – palsy Associated fracture of greater tubercle	(c) Bold to pass

Shoulder XR 2015-1-B

Stem: Moving onto Anatomy. On secondary survey, he has bilateral painful shoulders. This is a normal shoulder x-ray.			
Question 2 Shoulder X-ray **Subject:** Anat LOA: 1	2.1 Indicate on the X-ray the anatomy of the shoulder joint	**Xray description** **HUMERUS:** **Head** – articulates with glenoid **Anatomical neck** **Surgical neck** **Greater Tubercle** Lesser tubercle **SCAPULA** **Glenoid** cavity Neck **Acromion** process **Coracoid** process Spine Superior, medial and inferior angle **Clavicle** Distal portion articulates with acromion	Bold to pass
	2.2 Name the ligaments and describe how they stabilise the shoulder joint	**1. Glenohumeral ligaments** (superior, middle and inferior) consists of three bands, which runs with joint capsule from glenoid fossa to anatomical neck of humerus. They act to **stablise the anterior aspect of the joint.** **2. Coroacohumeral ligament** – Attaches the base of the coracoid process to the greater tubercle of the humerus. It **supports the superior part of the joint capsule.** **3.Transverse humeral ligament** – Spans distance between two tubercles of humerus. **Holds the tendon of long head of biceps in the intertubecular groove.** **4. Coracoacromial ligament** -runs between the acromion and coracoid process of the scapula, forming the coraco-acromial arch. This overlies the shoulder joint, **preventing superior displacement of the humeral head.**	2/4 to pass.

Humerus 2017-1-A

Stem: Moving on to Anatomy. X-rays reveal a fractured humerus.			
Question 2 Humerus (Bone) **Subject**: Anat LOA: 1	a) Describe the main visible features of this bone.	a) **Correct side** Proximal: **Head,** Anatomical & **surgical neck, Greater tuberosity/**Lesser tuberosity (major attachment areas for rotator cuff/deltoid), intertubercular groove (long head biceps), shaft**,** radial groove on shaft (radial nv, profunda brachii art), deltoid tuberosity Distal: **Lateral** (ext origin) **and medial** (flex origin) **epicondyle** (ulna nerve inf), coronoid, radial and olecranon fossa, **capitulum, trochlea**	**Bold plus 2 others** to pass
	b) How does this bone articulate with the scapula?	b) Glenohumeral joint • Ball and socket • Articular surface of humeral head in contact with shallow surface of glenoid cavity (deepened by glenoid labrum).	Must explain humeral head in contact with glenoid cavity
	c) What anatomical features contribute to the stability of the shoulder joint?	c) **Joint capsule** with fusion of the tendons of the scapular/rotator cuff muscles (pull humerus into glenoid) Ligamentous: **Glenohumeral** and **coracohumeral ligaments** **Coracoacromial arch** superiorly created by coracoacromial ligament **Deepening of glenoid cavity by glenoid labrum** **Tendons** of biceps and triceps (long head)	**3/6 bold** to pass

Humerus 2009-2

Question 2: Bones: Humerus	Please identify this bone and its main features	Proximal: Head, anatomical & surgical neck, greater and lesser tubercles, intertubercular groove, deltoid tuberosity, groove for radial nerve, Distal: condyles, epicondyles, trochlea, capitellum, coronoid and olecranon fossae	(6/8 to pass) (5 to pass)
	What factors stabilise the shoulder joint?	Bones –unstable, glenoid labrum helps. Ligs: Intrinsic. glenhumeral ligs – ant, weak. Coracohum lig stronger, lies superiorly. Extrinsic support by coraco-acromial lig. Superiorly	Name bone/muscle/lig concept ID bones as weakest part and muscles as most important
	Demonstrate the attachment of the rotator cuff muscles on the humerus	Muscles: rotator cuff muscles (SITS) stabilise superiorly. AP stability from TMaj, LD, Pec Maj	Name and ID attachment 3 of 4 RC muscles

Humerus 2007-2

TOPIC: Bone: Humerus and Scapula _____ **NUMBER: 2** _____

OPENING QUESTION	**Describe the bony features of the proximal humerus.**	**COMMENTS**
POINTS REQUIRED	**1 anatomical neck** **Head** **Surgical neck**	5/6 to pass
	2 greater and lesser tubercles	
	3 intertubercular groove	
PROMPTS		
SECOND QUESTION (if needed)	**What factors contribute to the stability of the glenohumeral joint?**	
POINTS REQUIRED	1 Muscular- rotator cuff- TM,SS,SSp,Infsp	3 /4 to pass
	2 Bony structures and labrum- poor	
	3 Ligaments- coracoacromial ligament	
	4 capsule	
PROMPTS		

Humerus 2006-1

TOPIC: Humerus - fracture sites and position of nerves ___ **NUMBER:** _____ Fri 2

OPENING QUESTION	Identify the main features of the proximal half of this bone	**COMMENTS**
POINTS REQUIRED	1 Proximal - Head, neck, greater & lesser tuberosity, intertubercular groove.	3/5
	2 Mid - shaft, deltoid tuberosity, radial groove.	2/3
	3.	
	4	
	5	
PROMPTS		
SECOND QUESTION (if needed)	What are the common sites of fracture in the proximal half of this bone and what nerves are at risk with these fractures	
POINTS REQUIRED	1 NOH – axillary and brachial plexus	1 of 2
	2 Midshaft – radial nerve, wrist drop & sensory deficit	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED	1	
	2	
	3	
	4	
PROMPTS		

Humerus 2003-1

TOPIC: Humerus _____ **NUMBER: 3AM** _____

OPENING QUESTION	CAN YOU IDENTIFY THE MAJOR LANDMARKS OF THE PROXIMAL HALF OF THIS BONE?	**COMMENTS**
POINTS REQUIRED	1 head neck x 2 2 tuberosities bicipital groove (intertubercular) shaft deltoid tuberosity radial/spiral grooves	6 TO PASS
	2	
	3	
	4	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	WHAT ARE THE MAJOR MUSCLES OF SHOULDER ABDUCTION & CAN YOU IDENTIFY WHERE THEY INSERT?	
POINTS REQUIRED	1 Deltoid Deltoid tuberosity Supraspinatus Greater tuberosity	2/2
PROMPTS		

Humerus XR 2015-2-C

Stem: Moving on to normal Anatomy.			
Question 3 Humerus X-ray **Subject:** Anat LOA: 1	1. Identify the features of the **humerus** on this x-ray	Prox: **Head**, Anat and **Surg neck, Shaft** **Gt tuberosity**/Lesser Tuberosity Distal: **Medial + Lateral** epicondyles, Trochlea, Capitulum, Lateral and medial supracondylar ridges	6 bold to pass
	2. What are the rotator cuff muscles and describe their actions	**Subscapularis** medial rotation of humerus **Supraspinatus** initiates abduction and abducts shoulder **Infraspinatus** and **teres minor** – lateral rotators of humerus All 4 muscles stabilise shoulder joint	4 muscles + 1 action to pass

Cubital Fossa 2017-1-D

Stem: Moving to Anatomy. You insert a second intravenous (IV) cannula into his right cubital fossa.			
Question 5 Cubital fossa (Mc Minns, 7th Ed Page 151) **Subject**: Anat LOA: 1	a) Describe the boundaries of the cubital fossa (NO IMAGE)	• Superiorly - imaginary line between epicondyles of humerus • Medially - lateral border pronator teres • Laterally - medial border brachioradialis • Floor - brachialis (and supinator) • Roof - deep fascia reinforced by bicipital aponeurosis, subcutaneous tissue and skin	3/5 correctly described
	b) In this photo identify the contents of the cubital fossa	**Radial nerve –** superficial terminal branch (16), Biceps/tendon (3), **Brachial artery (4)** dividing into Radial artery (13), and Ulnar artery (17), **Median Nerve (12)**, Brachialis (5)	Bold
	c) Describe the superficial lymphatics of the upper limb	• Originate from lymphatic plexuses in hand and **ascend mostly with superficial cephalic and basilic veins** • Some accompanying the basilic veins enter the cubital LNs • Efferent vessels from here drain to **axillary LNs** • Lymphatics accompanying the cephalic veins enter the axillary LNs with some entering deltopectoral LNs earlier	Bold

Cubital Fossa 2016-2-B

Stem: Moving onto Anatomy. You insert an Intravenous line.			
Question 5 Cubital fossa (photo from Mc Minns) **Subject:** Anatomy LOA: 1	Identify the superficial veins	1 **Basilic vein** 6 **Cephalic vein** 13 Median cubital vein 14 Median forearm vein	**Bold plus 1 vein** Prompt – point Show candidate "medial"
	Identify other neurovascular structures in the cubital fossa	15 **Median Nerve** 4 **Brachial artery** 22 Ulnar artery 21 Radial artery	**Bold plus 1**
	Identify the tendons at the wrist	9 FCU 10 FDS 18 Palmaris longis 8 FCR 11 FPL 5 Brachioradialis	**4 of 6**
	Which structures lie deep to flexor retinaculum at the wrist?	FDS, FDP. FPL, median nerve (+/- FCR, debatable)	**3 of 4**

Cubital Fossa 2015-2-C

Stem: Moving onto Anatomy. Intravenous access is obtained.			
Question 2 Cubital fossa/ forearm photo **Subject:** Anat LOA: 1	1. Describe the boundaries of the cubital fossa	**Lateral: Brachioradialis** (5), (extensors from lat epicondyle) **Medial: Pronator teres** (20), (flexors of forearm from CFO) Floor: Brachialis, supinator **Superior: Line between 2 epicondyles of humerus** Roof: Skin, deep fascia reinforced by bicipital aponeurosis (3)	Bold to pass
	2. Please identify the major veins that can be seen in the photo	Basilic vn (1); cephalic vn (6); median cubital vn (13); median forearm vn (14)	2/4 to pass
	3. Identify the major arteries that can be seen in the photo (Bonus: which is the larger terminal branch?)	**Brachial a** (4), radial a (21), ulnar a (22) Ulnar a	Bold to pass

Cubital Fossa 2015-1-C

Stem: We will now move to Anatomy. She needs vascular access.			
Question 2 Upper limb model **Subject:** Anat LOA: 1	Demonstrate the boundaries of the cubital fossa	**Lateral:** med border of brachioradialis (20) **Medial:** Lat border of pronator teres (12) **Floor:** Brachialis (10) Superior: Line between 2 epicondyles of humerus Roof: Skin, deep fascia reinforced by bicipital apon FYI: 13 = FCR	Bold to pass
	What are the contents of the cubital fossa ?	Med to lat: **median n (71), brachial a (49), biceps tendon (9)**, radial n deep to brachioradialis (20)	Bold to pass
	Identify the brachial a and its branches in the forearm	**Brachial (49), Radial** (55), **Ulnar** (59), Common Interosseous (60), post interosseous (61) Median (62)	Bold to pass

Cubital Fossa 2014-1-B

Stem: Moving now to your anatomy question. You are inserting an IV in her cubital fossa.			
Question 4 Cubital Fossa **Subject:** Anat LOA: 1	1.please identify and name the superficial veins 2. please identify the arteries and the nerves 3.please identify and name the muscles of the forearm	**1. medial cubital vein (13), cephalic vein(6),** medial forearm Vein(14) **2.median nerve (15)(, radial artery in CF or wrist (21), ulnar artery (22),** brachial artery(4) **3.** pronator teres (20), brachioradialis (5), biceps tendon(2) and aponeurosis (3), FCU(9),FCR (8),PL (18),FDS (10)	bold to pass at one site to pass Name 4

Cubital Fossa 2012-1

Question 4 Cubital fossa LOA: 1 Introduce: "This image is the LEFT elbow, and this is the LATERAL side"	a) Describe the boundaries of the cubital fossa b) Identify its contents in this photo	**Superiorly – imaginary line connecting the epicondyles** **Medially – Pronator teres** (flexors of forearm from CFO) **Laterally – Brachioradialis** (extensors from lat epicondyle) **Floor – Brachialis and Supinator muscles** **Roof – deep fascia/bicip. aponeurosis**, subcut fat, **skin** **Brachial a**(3) dividing into radial(13) & ulnar (15) arteries. **Biceps brachii tendon/aponeurosis**(1+2) **Median n**(9) **Radial n** (14)– deep between Brachioradialis and Brachialis Posterior interosseous n(11)	**Bold** required

Cubital Fossa 2010-2

Question 4: **Photo:** **Cubital fossa**	1 Identify the contents of the cubital fossa shown in this photograph.	(Boundaries - PT, BR, line b'n epicondyles.) Contents - **Median n, Brachial a, Biceps tendon,** Radial n, veins with Brachial a	Bold = required for pass
	2. Demonstrate the course and branches of the Radial nerve, and name the structures they supply	2. Radial n under BR muscle laterally, **divides into superficial and deep, former through Supinator to post. compt. muscles/jt., lateral to ant. compartment forearm sensory only to dorsum hand**	Bold to pass
	3. Which veins in the cubital fossa are usually accessed during venepuncture? What are the commonly observed variations to these vessels?	3. Median cubital, **Basilic and Cephalic v's** Median basilic and median cephalic in 20%	(Optional)

Cubital Fossa 2008-2

Question 3: Model: Cubital fossa	Demonstrate the boundaries of the Cubital fossa	Lateral: medial border of brachioradialis Medial: Lat border of pronator teres Superior: Line between 2 epicondyles of humerus Floor: brachialis Roof: skin, deep fascia reinforced by bicipital apon.	To pass lateral, medial and floor
	Contents:	Med to lat. : median n, brachial art., biceps tendon, radial n deep to brachioradialis	To pass – median nerve, brachial artery and biceps tendon
	Describe the course of the brachial artery as it passes through the arm (pull off both upper forearm muscles from model)	From lower border of teres major(cont. of axillary art) to neck of radius. Medial to humerus > bicipital groove, post to biceps, anterior to triceps medial head. Comes to lie on brachialis as descends to cubital fossa. Median nerve crosses anteriorly. Ulnar nerve a post relation in the upper arm	To pass – continuation of axillary artery, Division over proximal radius into ulna and radial artery, median nerve crosses.

Cubital Fossa 2008-1

OPENING QUESTION	**Describe the boundaries of the cubital fossa**	COMMENTS
POINTS REQUIRED	1 Superiorly – imaginary line connecting the epicondyles	4 out of 5 to pass
	2 Medially – flexor muscles of forearm arising from common flexor attachment & medial epicondyle (pronator teres)	
	3 Laterally – extensor muscles of forearm arising from the lateral epicondyle & supraepicondylar ridge (brachioradialis)	
	4 Floor – brachialis and supinator muscles of the arm & forearm	
	5 Roof – deep fascia reinforced by bicipital aponeurosis, subcutaneous tissue and skin.	
PROMPTS	Look at your own cubital fossa	
SECOND QUESTION (if needed)	**Describe the contents of the cubital fossa**	First 4 to pass (and order correct)
POINTS REQUIRED	1 Brachial artery dividing into terminal branches; radial & ulnar arteries. It lies between	
	2 Biceps brachii tendon AND	
	3 Median nerve	
	4 Radial nerve – deep between brachioradialis and brachialis, dividing into deep and superficial branches	
	5 (Veins accompanying arteries)	
	6 Venepuncture veins (median cubital and medial and lateral antebrachial)	
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED	1	
	2	
PROMPTS		

COMMENTS

Cubital Fossa 2006-1

TOPIC: Cubital Fossa _____ **NUMBER: Th PM**

OPENING QUESTION	Describe the boundaries and contents of the cubital fossa	**COMMENTS**
POINTS REQUIRED	1 Pronator teres medially	
	2 Brachioradialis laterally	
	3 Line between the epicondyles	
	3. Deep fascia & bicipital aponeurosis - Roof	
	4 Brachialis, supinator - Floor	1 ,2 & 3 to pass
PROMPTS	Perhaps questions of orientation. Tell me what you can see	
SECOND QUESTION (if needed)	What are the contents of the cubital fossa? (medial to lateral)	
POINTS REQUIRED	Median N,	
	Brachial artery	
	Biceps tendon	
	Radial nerve	
	Posterior interosseous branch	4 of 5 to pass
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED		
PROMPTS		

Elbow 2011-2

Question 2 **Bone - ulna** **LOA: 1**	*i. Describe the main features of the proximal end of this bone (ulna)*	1a) name **bone and side** 1b) **olecranon / coronoid process/ trochlear notch**, Radial notch, supinator crest, ulna tuberosity, interosseous border	**1a) bold** **1b) 3 bold + one other**
	ii. How does this bone articulate with the other bones of the elbow?	2) olecranon and coronoid process form walls of trochlear notch which **articulates with the trochlear** of the humerus – allows flexion and extension. On lateral side of coronoid process is the **radial notch which articulates with the radial head**	**2) bold + some understanding of basic movement**
	iii. What else contributes to the stability of the elbow joint?	3) **joint capsule**- weak anteriorly and posteriorly, strengthened on each side by **collateral ligaments** - thickenings of fibrous layers of jt capsule. - Lateral fan-like radial collateral ligament – blends with annular ligament of radius which encircles radial head - Medial collateral ligament – triangular – consists of 3 bands – anterior (strongest) , posterior (weakest) and oblique (deepens socket for trochlear of humerus	**3) bold + some idea about ligaments and where they attach**

Elbow 2010-1

Question 3: Model: Elbow	a. Demonstrate the bony features of the elbow joint.	Humerus, Olecranon of ulna, and Radial head. Other features are coronoid of Ulna, Trochlea, Capitulum, lateral and medial epicondyles, olecranon fossa, coronoid fossa	7/10 to pass
	b. Demonstrate the capsular attachments of the elbow.	Fibrous layer: surrounds whole joint, proximally above the coronoid and olecranon fossae, distally across neck of radius and adjacent ulna. Synovial layer, lines the internal surface of fibrous layer and non articular parts of the humerus….is continuous distally with synovial membrane of prox radioulnar joint	Need either good description of upper or lower margin to pass
	c. Describe the collateral ligaments of the elbow.	**Radial-** lat epicondyle of humerus and blends distally with annular ligt of radius. Ulnar- medial epicondyle of humerus to **1)** coronoid tubercle **(anterior band)**..strongest **2) Posterior fan like band** weakest and **3)** slender **oblique band.**	2/4 bold to pass
	d. Describe the movements of the elbow joint	Flexion Extension	Both to pass (Pronation/supination is critical error)
Question 4:	a. This is a midline sagittal section of a	Major: **Pubic symphysis, Bladder, Vagina, Uterus, Rectum, Sacrum**	5 of bold to pass

Elbow 2008-2

Question 1:	Demonstrate the bony features on these xrays	Elbow joint Distal Humerus: Med and lat epicondyles*, trochlea and capitulum*, olecranon fossa Prox. Radius: Radial head* and neck, prox. radio-ulnar joint, biceps tuberosity Prox. Ulna: Coronoid process, trochlear notch, olecranon*	At least 5 to pas
	Indicate the common extensor origin and name the muscles that arise from it.	Lat. Epicondyle*: Ext. carpi radialis brevis Ext. digitorum Ext. digiti minimi Ext carpi ulnaris Others that arise from lat epicondyle: anconeus and superficial head of supinator	* plus 2 of 4 muscles to pass

Elbow 2006-1

TOPIC: Bone; Ulna &humerus – Landmarks and articulations of the Ellow **NUMBER: Th A**

OPENING QUESTION	Demonstrate the major bony features of the elbow	**COMMENTS**
POINTS REQUIRED	1 Humerus: Medical epicondyle, Lateral epicondyle, Capitellum, Trochlea, Cornoid fossa, radial fossa, Olecranon fossa	5 to pass
	2 Ulna: Olecranon, trochlear fossa, Coronoid process, Sublime tuberosity, Supinator crest, Radial notch	4 to pass
	3	
PROMPTS		
SECOND QUESTION (if needed)	Outline the capsular attachments of the humerus	
POINTS REQUIRED	1 Medial and lateral margins	Points 3 & 4 to pass
	2 Capitellum and trochlea.	
	3 Above the cornoid and olecranon fossa	
	4. Excludes epicondyles	
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED		
PROMPTS		

Elbow movements 2011-1

Q2. Model: Elbow joint/forearm	Demonstrate and describe on the model the movements of supination and pronation Prompt: What structures are involved? What muscles are involved in supination and pronation? What nerves are involved in supination and pronation?	**Rotation of the head of radius in annular ligament** **Radius rotates laterally around its axis** Distal radio-ulnar joint is the pivot for the rotatory movement **Both movements and name annular ligament** **Supination: Supinator, Biceps,** plus EPL and ECRL **Pronation: Pronator teres, Pronator quadratus** **Supination: Radial, Musculocutaneous,** (deep branch of radial to Sup) **Pronation: Median,** (ant interosseous br to PQ)	Bold to Pass

Elbow XR 2014-2-D

Stem: Moving on to anatomy She has a swollen right elbow.			
Question 4 Elbow X-ray **Subject:** Anat LOA: 1	Identify the bony features on this Xray	Medial / Lateral epicondyles, capitulum, olecranon, radius – head/neck, olecranon fossa, coronoid fossa, trochlea, proximal radio-ulnar joint, coronoid process of ulna	6 to pass
	What factors determine the stability of the elbow joint? Prompt – What are the ligaments of the elbow	**Bony factors – shape of trochlea / olecranon fossa** Joint capsule – fibrous joint capsule weak **Ligaments** **– radial collateral ligament** – lateral epicondyle and blends with the **annular ligament** of the radius (which holds the radial head in the radial notch of the ulna). - medial **ulnar collateral ligament** from medial epicondyle to the coronoid process and olecranon of the ulna - 3 bands 1. Anterior – strongest 2. Posterior – weakest 3. oblique – deepens trochlear notch Muscles – biceps, brachialis,(BR), triceps RCL & UCL & annular ligament	Bone and ligaments 3 of 4 bolded

Elbow XR 2012-2

Question 2 **Xray** Elbow LOA: 1	Identify the bony features on this XRay What factors determines the stability of the elbow joint?	Medial/lateral epicondyles, capitellum, olecranon, radius-head/ neck, olecranon fossa, coronoid fossa, trochlea, proximal radio-ulnar joint, coronoid process of ulnar **Bony factors-shape of trochlea /olecrannon fossa** Joint capsule-fibrous joint capsule weak **Ligaments-** ***radial collateral ligament***- lateral epicondyle and blends with the ***annular ligament*** of the radius (holds the radial head in the radial notch of the ulnar). Medial ***ulnar collateral ligament*** *(3 bands)* from medial epicondyle to the coronoid process and olecrannon of the ulnar Muscles- biceps, brachialis, (BR) , triceps RCL and UCL and annular ligament	6 to pass 3 of 4 bolded Prompt – what are the ligaments of the elbow jt

Elbow XR 2004-2

TOPIC: Elbow _____ **NUMBER: 3.1** _____

OPENING QUESTION	Identify the bony features of the elbow joint on this Xray	**COMMENTS**
POINTS REQUIRED	1 Humerus – capitulum, trochlea, radial fossa, coronoid fossa, olecranon fossa	3/5 to pass
	2 Radius – head, neck	
	3 Ulna – olecranon, trochlear notch, coronoid process	2/3 to pass
	4	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	Demonstrate the attachments of the ulnar collateral ligament on the lateral	
POINTS REQUIRED	1 Anterior band – medial epicondyle to medial edge of coronoid	
	2 Posterior band – medial coronoid to medial olecranon	
	3 Middle band – between anterior & posterior bands	
	4	
	5	
	6	
PROMPTS		

Elbow XR 2003-2

TOPIC 1	X-Ray Elbow	COMMENTS
QUESTIONS AND POINTS REQUIRED	Demonstrate the bony features of the elbow joint: Humerus: epicondyles, olecranon fossa, capitulum, trochlea Radius: head, neck, tubercle Ulna: olecranon, coronoid process	All to pass
	Demonstrate the capsular attachments (AP and lateral films): Around olecranon, radial and coronoid fossae of humerus Olecranon margins Annular ligament	Articular margins of humerus, olecranon margins and annular ligament to pass
	Demonstrate the ligamentous attachments: Medial collateral – medial epicondyle to olecranon with 3 elements Lateral collateral – lateral epicondyle to annular ligament	Name the 3 ligaments to pass

Ulna 2003-1

TOPIC: ULNA_____ **NUMBER: 3PM** _____

OPENING QUESTION	IDENTIFY THE MAJOR FEATURES OF THIS BONE	**COMMENTS**
POINTS REQUIRED	OLECRANON/CORONOID/TROCHLEA/RADIAL NOTCH/SUPINATOR CREST/ SUBLIME TUBERCULE	7 FEATURES TO PASS
	SHAFT/ ANTERIOR & POSTERIOR BORDERS	
	DISTALLY: STYLOID	
PROMPTS		
SECOND QUESTION (if needed)	WHAT MUSCLES ARE INVOLVED IN FLEXION OF THE ELBOW	2/4 TO PASS
POINTS REQUIRED	BICEPS	
	SUPINATOR	
	BRACHIORADIALIS	
	BRACHIALIS	
	FLEXOR DIGITORUM SUPERFICIALIS	
PROMPTS		

Forearm extensor compartment 2009-2

Question 3: Model: Arm Extensor group of forearm muscles	{Using the model} Identify the extensor muscles of the forearm at the level of the wrist	1. apl 23, epb 22 2. ecrl 19, ecrb 18 3. epl 21 4. ed 27, ei 5. edm 6. ecu 16	7/9 pass
	What is the nerve supply of this compartment?	Radial nerve and its deep branch becoming post interosseus nerve	Radial n. to pass
	Describe how the action of these muscles produces thumb movement	Apl abduction and extension at carpometacarpal jt Epl extension at ip joint Epb extension at mcp	All with prompts

Forearm flexor compartment 2006-2

2. **Arm – forearm flexors, distal insertions**	1. Using this model, please identify the muscles in the flexor compartment of the forearm? You may lift off the detachable segment	Superficial compartment -Pronator teres, FCR, FDS, Palmaris Longus, FCU Deep compartment -FDP, FPL, Pronator Quad		
	2. Please describe and demonstrate the distal insertions of these muscles.	PT..lateral convexity of radius, FCR..base of 1, 2 mcarpals, FDS..base of middle phalanx, PL..palmar apon, FCU..pisiform, FDP..base of distal phalanx, FPL..base of distal phal, PQ..lat part of radius		

Forearm pronation and supination 2003-2

TOPIC 2	Forearm model	
QUESTIONS AND POINTS REQUIRED	On this model, demonstrate pronation and supination of the forearm	Demonstrate to pass
	Which muscles are involved	Pronation: PQ and PT Supination: Supinator and biceps to pass
	What nerves are required for pronation and supination:	Median for pronation, Musculocutaneous and radial for supination

Radius and Ulna 2016-1-B

Stem: Moving onto Anatomy. He also complains of a sore wrist after a fall.			
Question 5 Bones- radius and ulna LOA: 1	*a. Identify this bone and describe its anatomical features.*	Identify **radius**. Candidates can mention the side and why. **Head-** articulates with the capitellum of the humerus. **Neck** **Radial tuberosity**- demarcates the head/neck from the shaft, attachment of biceps brachii. **Shaft**- triangular in cross section, anterior and posterior oblique lines. Distal end- **styloid process, ulnar notch and dorsal tubercle of the radius.**	Radius, and 5/7
	b. Which carpal bones articulate with its distal end?	The distal end articulates with the **lunate and scaphoid.**	Both to pass
	c. Describe the normal relative relationship between the radial and ulnar styloid processes. Prompt: "Which is normally more distal?"	Radial styloid projects further (ie more distal) than the ulna styloid.	
	d. Demonstrate the movement of the radius during supination.	The axis of supination passes through the centre of the head of the radius proximally and the ulnar styloid distally. The head of the radius rotates within the collar formed by the annular ligament and the ulnar radial notch. Supination rotates the radial head laterally around its axis (pronation rotates it medially).	Pages 804-5, 819 678-9 7th edition.

Venous drainage 2015-1-C

Stem: Moving on to Anatomy. Intravenous access is obtained			
Question 2 Forearm (photo) Subject: Anat LOA: 1	On the photo please identify the major veins that can be seen. What other vascular structures can you identify? Describe the venous drainage of the hand and forearm	From proximal to distal 1; **basilic** v 6; **cephalic** v 13; **median cubital** v 14; **median forearm** v. 4; **brachial artery** 21; **radial** a 22; **ulnar** a a) **Superficial** Dorsal venous network, and superficial palmar venous arch drains to either the basilic v ulnar side or cephalic v radial side of the forearm (highly variable distribution). b) **Deep** Deep venous palmar arch drains to paired radial veins and paired ulnar veins which accompany the arteries of the same name. Interosseous veins unite with radial and ulnar veins All terminate into the brachial veins as they leave the forearm	**2 req'd** **Brachial and one other req'd** **Mention of superficial and deep systems and mention of venae comitantes (or principle)**

Anatomical Snuffbox 2007-1

OPENING QUESTION	What are the boundaries of the anatomical snuffbox?	COMMENTS
POINTS REQUIRED	1)EPL on the ulnar side	Need 2 out of 3 tendons to pass
	2)EPB/APL on the radial side	
	3)Floor is radial styloid/scaphoid/trapezium/base of thumb MC	
PROMPTS	What structures make up the floor of the snuffbox?	
SECOND QUESTION (if needed)	What are the contents of the anatomical snuff box?	2 out of 3
POINTS REQUIRED	1) Radial artery	
	2) Cutaneous branches of radial nerve	
	3) Origin of cephalic vein	
PROMPTS	Are there any other vessels in the snuffbox?	
THIRD QUESTION (if needed)	What tendons run underneath the extensor retinaculum?.	
POINTS REQUIRED	1) Divides dorsum of wrist into 6 compartments. going from radial to ulna 1st: APL/EPB are in first compartment, each in sep sheath 2nd radial extensors of wrist ECRL/ECRB each in own sheath 3rd on ulna side of radial styloid, EPL 4th 4 tendons of Ext.Dig over tendon of Ext indicis: common sheath 5th over the radio-ulnar joint, double tendon of Ext dig minimi 6th groove near base of ulnar styloid Ext Carpi Ulnaris	3/6 to pass

COMMENTS

Carpal bones 2016-1-A

Stem: Moving onto Anatomy. She complains of a painful wrist			
Question 3 Carpal bones, stability and movements **Subject:** Anatomy LOA: 1	Name and identify the carpal bones on this model What movements occur at the wrist joint (demonstrate them) and which muscles produce them?	Scaphoid, Lunate, triquetrum, pisiform, hamate, capitate, trapezoid, trapezium. **Flexion** – **FCR, FCU** + flexors of fingers & thumb, Palmaris longus & AbPL **Extension** – **ECRL or ECRB, ECU** and extensors of fingers & thumb **Abduction** – FCR, ECRL or ECRB, APL **Adduction** – ECU and FCU (Circumduction)	6 to pass. Bold to pass

Carpal bones 2008-1

OPENING QUESTION	Identify the bones of the carpus	COMMENTS
POINTS REQUIRED	1 scaphoid, lunate, trapezium, trapezoid, capitate, hamate triquetrum, pisiform	7 out of 8 to pass
	2	
	3	
	4	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION	Describe the attachments of the flexor retinaculum (= Transverse palmar ligament)	
POINTS REQUIRED	1 Hook of hamate + pisiform medially (= ulnar)	2 to pass
	2 Trapezium (tubercle) + scaphoid (tubercle) laterally	
	3	
	4	
	5	
	6	
PROMPTS	What forms the carpal tunnel?	
THIRD QUESTION (if needed)	What nerves pass **superficial** to the carpal tunnel?	1 to pass
POINTS REQUIRED	1 Ulnar nerve	
	2 Palmar cutaneous branch of median nerve	
	3	
	4	
	5	
	6	

Carpal tunnel 2013-2-A

A 60 yo woman presents with symptoms suggestive of carpal tunnel syndrome

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Anatomy: X-ray - carpal bones / hand Include description of contents of carpal tunnel	Identify the carpal bones.	**Identify all carpal bones in AP view.**	All bones required
	Identify the attachments of the flexor retinaculum.	Scaphoid tubercule, hook of hamate, trapezium and pisiform	2 of 4
	What structures pass through the carpal tunnel?	**FCR/FPL/FDS/FDP** tendons + Synovial sheaths **Median nerve**	**bold** to pass
	Which muscles flex the wrist?	**FCR, FCU, FPL, FDM, FDS, FDL, Palmaris longis**	5 of 7

Carpal tunnel 2006-2

5. Flexor retinaculum	1. On your own wrist demonstrate the surface markings and attachments of the flexor retinaculum	1. volar surface wrist - distal skin crease = proximal border 2. med attachment = pisiform & hook hamate 3. lat attachment = tubercle scaphoid & trapezium	**Prompt:** Demonstrate the position of the flex retinac on your wrist	
	2. Describe the contents of the carpal tunnel	in a superficial layer from lat to medial – 1.Flex carpi radialis then 2. median nerve then 3 long flexor tendons to thumb and fingers with tendons of FDS in 2 rows – mid&ring superficial to index &little finger 4. FDP tendons deep 5. FPL tendon deep and lat to FDP	**Prompt:** Name structures that pass deep to the flexor retinaculum	
	3. What structures pass superficial to flexor retinaculum From medial to lateral	1 ulnar nerve 2 ulnar artery 3 superficial cutaneous branches ulnar nerve 4 palmaris longus 5 sup. cut. branch median n. 6.Palmar branch radial a.		

Dermatomes 2013-1

Question 5 Discussion Sensory Innervation (Upper Limb)	Demonstrate the dermatomes of the upper limb	C4 – lateral shoulder C5 – lateral arm C6 – lateral forearm & thumb C7 – middle / ring fingers & center of posterior forearm C8 – little finger, medial hand / forearm T1 – medial forearm, inferior arm T2 – medial arm, axilla	5 to pass. General concept of distribution required
	On your own hand demonstrate which nerves supply sensation to which parts of the hand? Prompt: Demonstrate the peripheral cutaneous innervation of the hand	Median –palmar & distal dorsal tips of lateral 3.5 digits Ulnar – palmar & dorsal surface of medial 1.5 digits Radial – dorsal aspect of lateral 3.5 digits (excluding tips)	All 3 nerves & correct distribution

Dermatomes 2008-2

Question 5 Discussion Dermatomes	What are the dermatomes of the upper limb? Prompt to demonstrate on own arm	C 3,4: base of neck, lateral over shoulder C5: lateral arm C6: lateral forearm and thumb C7 middle and ring(or mid 3) fingers and middle post surface of limb C8: Little finger, medial hand and forearm T1: mid forearm to axilla T2: small part of arm and axilla	Need 5 correct to pass
	What is the peripheral nerve supply to the skin of the hand? (Forearm as bonus)	Forearm: Post cut n of forearm, from radial > post forearm. Med cut n of forearm from medial cord of B plexus > ant and medial forearm. Lat cut n of forearm, from musculocut > lat forearm Hand: Radial > base of thumb and lateral dorsum of hand. Ulnar > ulnar 11/2 fingers and palm. Median > radial palm and 31/2 fingers inc post tips of these.	Need to name all 3 nerves to hand and reasonable distribution.

Hand 2017-2-D

Stem: Moving on to Anatomy**.** He has a tender right hand and wrist.			
Question 3 Hand Model **Subject:** Anatomy LOA: 1	a) On this model identify ligaments of the wrist. *Prompt: What are the joints in the wrist?*	Ulnar collateral ligament (32), Interosseous membrane (21), radial collateral ligament (36), dorsal radiocarpal ligament (33), dorsal radioulnar ligament (34), intercarpal ligaments (37), Palmar carpometacarpal ligaments (1), palmar radiocarpal ligament (5), palmar radioulnar ligament (7)	4 to pass
	b) What movements occur at the wrist and which muscles produce them?	**Flexion:** FCR, FCU plus thumb/finger flexors, PL, APL **Extension:** ECRL, ECRB, ECU plus thumb/finger extensors **Abduction:** APL, FCR, ECRL, ECRB (limited to 15 degrees due to radial styloid) **Adduction:** ECU, FCU Combined movements = **circumduction**	4 movements with one muscle for each to pass

Hand 2013-1

Question 3 Photo Palm of Left Hand (Describe Structures)	Using the photograph as a guide describe the vascular supply of the hand Prompt: Can you identify any of them What other major structures can you identify	Ulnar Artery (21) forming the Superficial palmer arch (18) Radial Artery (17) forming deep palmar arch 12-**Median N,** 13-Med N – Palmer Br, 14-Med N – Recurrent Br, 15-Digital nerves, 22-Ulnar N 1- Abductor pollicis brevis, 2- Abductor digiti minimi, 3-Adductor pollicis, 8- Flexor digiti minimi brevis, 9- Flexor pollicis brevis, 11- Lumbrical , 16- Palm Br 6- FCR, 7- FCU, 10-Flex Retinacum, 20-Synvo Sheaths of flex tendons	Identify ulnar artery and superficial palmar arch Describe radial artery and deep palmar arch 3 to pass Bold and 6 others to pass

Hand and wrist XR 2003-2

TOPIC 1		COMMENTS
QUESTIONS AND POINTS REQUIRED	Demonstrate the bones of the hand and wrist as seen on this xray {AP)	All to pass
	On the lateral view demonstrate the bones of the carpus	Scaphoid, lunate and capitate to pass.
	What are the bony attachments of the flexor retinaculum.	Hamate, Trapezium, Scaphoid, Pisiform to pass

Hand Arterial Supply 2014-2-D

Stem: A 70 year old man with a history of Atrial Fibrillation presents with sudden onset of painful index and middle fingers in his left hand. Examination reveals these fingers to be pale and cold. We will start with Anatomy.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Hand (photo) **Subject:** Anat LOA: 1	1. Please describe the arterial supply of the hand. (without photo) Prompt: What happens to these arteries in the palm? How are they arranged? How do they terminate?	The **Ulnar and Radial Arteries supply all of the blood supply to the hand.** **Radial Artery- Deep Palmar Arch.** Lies deep to long flexor tendons and sits across the metacarpals just distal to their bases. Branches: (of Deep Palmar arch) • 3x Palmar metacarpal arteries • Princeps pollicis artery • Radialis indicis artery **Ulnar Artery-** Two terminal branches Deep Palmar Branch (24) anastomoses with the Radial Artery via the Deep Palmar arch. **Superficial Palmar Arch** is main terminal branch. • 3 Common Palmar Digital Arteries arise. • Each divides into a pair of Proper Palmar digital arteries that run along adjacent sides of 2-4th digits.	Bold + 1 branch of each arch to pass
	2. Can you identify the Ulnar artery on the picture?	**Ulnar Artery (23),**	Bold to pass
	3. Describe the sensory innervation to the index and middle fingers?	**Median nerve (16) & Radial to dorsum to DIP** **1st** (7) **and 2nd** (22) **Lumbricals.** Muscles of the Thenar eminence: Opponens pollicis, **Abductor pollicis brevis (2) and Flexor pollicis brevis (13).**	Bold to pass Thumb, Index, Middle and half of the ring finger (palmar aspect). Dorsal tips (nail beds) of the thumb, 2nd and 3rd fingers.
	4. Can you identify on the picture muscles in the hand and forearm that are innervated by the median nerve?	Forearm: **Flexor carpi radialis (8),** Palmaris longus, **Flexor digitorum superficialis(12), Radial half Flexor digitorum profundus (2nd and 3rd digits) (11). Flexor pollicis longus (14),** Pronator quadratus	4 of 8 bold to pass FPL and PQ supplied by the Anterior Interosseous nerve (a branch of the Median)

Hand bones 2016-2-A

Stem: Moving onto Anatomy			
Question 2 **Hand (bone)** **Subject:** Anat LOA: 1	1)Please name the bones in this model. 2)Please demonstrate where the Dorsal and Palmar interossei muscles attach. *Extra if time:* *What do the interossei muscles do*	Prox: Scaphoid, lunate, triquetrum, **pisiform**. Distal: Trapezium, trapezoid, capitate, hamate. Metacarpals, prox, middle and distal phalanges. Dorsal –From adjacent sides of 2 MCs (bipennate) -> bases of the prox phalanges (+ ext expansions of 2nd-4th digits). Palmar – From palmar surfaces of 2nd, 4th & 5th MCs (unipennate)-> bases of prox phalanges (+ ext expansions of digits 2,4+5). **Palmr adduct/Dorsal abduct** digits around axial line. Flex MCPJ & extend IPJ.	All except bold to pass To pass: MCs -> phalanges Dorsal bipennate Palmar unipennate

Hand muscles 2010-2

Question 3: **Model: Hand**	Could you please identify the muscular structures visible in the hand of this model? (**Prompt** away from thenar/hypothenar muscles)	Potentially 10 ..3 thenar (op, apb, fpb) 3 hypothenar (adm, fdmb, odm), Add Poll, Lumbrical, Dorsal and palm int 6/10	5 to pass
	Could you demonstrate the actions produced by the lumbricals and the interossei and describe their innervation?	**Lumbs** do Z, and PAD/ DAB for **interossei**, along with extension.. actions are **combined** to produce Z All deep br ulnar, except for lat 2 lumbs..median nerve..,	All to pass
	Could you demonstrate the origins and insertions of the short muscles of the hand?	**Lumb**..orgn1,2 lat side of lat 2 tendons of fdp, 3, 4 bipennate from med 3 tend fdp, **dors int** orgn bipenn from adjacent mc's, insert base prox ph, ext expans, **palm int** palm surface 2,4,5 mc, ins as for dors, 2,4,5	**Bonus**

Hand muscles 2003-2

TOPIC 5	Small muscles of hand	
QUESTIONS AND POINTS REQUIRED	Describe the function of the interossei and lumbricals	Flexion at MCPJs, extension at IPJs
	What is the nerve supply of these muscles	Interossei: ulnar Lumbricals: Ulnar 2 and median 2

Hand sensation 2011-2

Question 5 **Discussion: Sensation Ring finger** **LOA: 1**	*i. Please describe the sensory innervations of the hand.* *ii. What dermatomes are represented on the hand* *iii. What are the landmarks of the median nerve at the wrist?*	Ulnar nerve: ulnar 1.5 digits Med nerve: radial 3.5, with wrap over onto dorsum Rad nerve: dorsum 2.5 C6 radial side, C7 middle, C8ulnar side FCR and Palm long at prox wrist crease.	**Need complete description to pass** **3 to pass**

Hand vasculature 2003-2

TOPIC 5	Hand Vascular	
QUESTIONS AND POINTS REQUIRED	On your hand, demonstrate the vascular supply to the hand: Ulna: superficial palmar arch with common digital to digital arteries to ulnar part of hand Radial: through snuffbox and between heads of 1st interosseous to form deep palmar arch: princeps pollicis, radialis indicis, metacarpal, common digital and digital Dorsal carpal arch and dorsal metacarpal and digital arteries (bonus)	Ulna and superficial palmar arch, radial and deep palmar arch to pass

Median nerve 2012-2

Question 3 **Photo** Median nerve in hand LOA: 1	What structures can you identify in this image? What are the attachments of the flexor retinaculum and what does the carpal tunnel contain? Describe the median nerve supply in the hand	**Median nerve**, FCR, BR, FCU, FDS, FDP, ulnar nerve, ulnar artery, lumbricals, thenar muscles-APL, APB, FPB Boundaries: roof- flexor retinaculum, floor-scaphoid & trapezoid laterally, pisiform and hook hamate medially Contents: Median nerve, FDP, FDS, FPL, FCR Sensory- palmar-thumb and index and middle fingers, dorsal surface- distal aspect thumb, index, middle and half ring fingers Motor- LOAF muscles (lat 2 lumbricals, OP, APB, ,FPB)	Median nerve plus 4 muscles to pass 3 of 4 flex ret attachments and 4 of 5 contents Both motor & sens to pass

Median nerve 2010-2

Question 4: **L wrist & hand photo**	a) Identify the median nerve in this photo and adjacent structures.	16. Median n (15. Flexor retinaculum (anterior) – divided) 12. Flexor digitorum superficialis (posterior) 14. Flexor pollicis longus (lateral) 11. Flexor digitorum profundus (deep posterior) 18. palmar cutaenous branch of median n	Median n and 2 other structures to pass
	b) Demonstrate where sensation changes may occur if the median nerve is injured in the forearm.	Palmar 3 ½ digits, adjacent palm and dorsal distal fingers	Finger distribution to pass
Q 4, cont.	c) Demonstrate these changes if the median nerve is compressed in carpal tunnel syndrome	Same, except palmar area is preserved (palmar cutaneous branch arises proximal to flexor retinaculum	Bonus question

Middle finger flexors 2005-1

TOPIC: Middle Finger _____ **NUMBER: 1-4** _____

OPENING QUESTION	What are the tendon attachments of muscles involved in flexion of joints of the middle finger	**COMMENTS**
POINTS REQUIRED	1 FDS: round FDP tendon/chiasma/insert margin of front middle phalanx	Required
	2 FDP Base terminal phalanx	Required
	3 Lumbricals Extensor Sheath thence Dorsum proximal phalanx	
	4 Palmar & Dorsal Interossei (flex MP if work together)	
	5	
	6	
PROMPTS		
SECOND QUESTION (if needed)	What is the nerve supply to these muscles?	
POINTS REQUIRED	1 Ant interosseus branch median (middle/ring)	2 to pass
	2 Ulnar (ring/little)	
	3 60% 2:2 & 40% 3:1/1:3	
	4 Possible lumbricals by ulna	
	5	
	6	

Palmar fascial spaces 2017-2-D

Stem: Moving on to Anatomy.			
Question 3 Palmar space (Model NS13) **Subject:** Anatomy LOA: 1 Moore's 7th edition p. 785, Table 6.16, Fig 6.86	a) Using this model, demonstrate the structures which may have been injured. b) Describe the sensory and motor nerve supply of the hand. *Prompt motor and sensory.*	Flexor tendons (FDP, FDS), MCP joint and head, common palmar digital nerves and arteries **<u>Ulnar nerve</u>** - ***Motor functions***: Innervates the majority of the intrinsic muscles of the hand (hypothenar, interosseous, adductor pollicis, deep head of flexor pollicis brevis, ulnar lumbricals for digits 4 & 5) ***Sensory functions***: Innervates skin of 5th digit and ulnar half of fourth digit and adjacent hand. **<u>Median nerve</u>** - ***Motor functions***: Supplies innervation to the thenar muscles (except adductor pollicis and deep head of flexor pollicis brevis) and radial two lumbricals in the hand. ***Sensory functions***: Provides sensation to skin of palmar and distal dorsal aspects of radial three and a half digits. **<u>Radial nerve</u>** – Sensory functions: Dorsum of the radial side of the hand excluding distal fingers.	Correctly identify 3 to pass Must mention median and ulnar nerves with basic concept of sensory distribution and the majority of the motor supply.

Palmar fascial spaces 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Q 1:	**Describe the palmar fascial spaces.** **Prompt:** **Direct to fascial spaces not compartments**	i) Midpalmar: Underlies central fascial compartment Related distally to synovial sheathes 3-5th digits Related proximally to common flexor sheath (as it emerges from carpal tunnel) ii) Thenar: Underlies thenar compartment Related distally synovial flexor tendon sheath of the index finger Related proximally to common flexor sheath distal to the carpal tunnel	3 of 6 to pass
Q 2:	**What are the contents of the central fascial compartment of the palm?**	Flexor tendons and sheaths Lumbricals Superficial palmar arterial arch Digital vessels Digital nerves	2 of 5 to pass
Q3:	**What are the boundaries of the central fascial compartment of the palm?**	Lateral – fibrous septum from palmar aponeurosis to 3rd metacarpal Medial – fibrous septum from palmar aponeurosis to 5th metacarpal Palmar aponeurosis superficial [covers it] Inferior mid palmar space	2 of 4

Thenar muscles 2013-1

Question 5 Discussion Movements of Thumb	Describe the origins and insertions of the muscles in the thenar eminence	**APB, FPB, OP** (all originate flexor retinaculum and scaphoid/trap tubercles) APB inserts lat side base prox phal, OP inserts lat 1st MC FPB both heads insert base lat prox phal.	All bold and 1 correct origin and 1 correct insertion
	Demonstrate the movements produced by these muscles.	OP opposes (mc to middle palm, rotates), ABD abducts the MCP jt, helps opposition, FPB flexes the MCP jt	Demonstrate 2 correctly
	What nerves innervate these muscles?	All recurrent br. **Med n,** except deep head FPB -deep Br ulnar nerve variable ++ or recurrent Br Median nerve	Must ID median n

Thenar muscles 2011-1

Q5. Hand muscles	Describe the muscles of the thenar eminence and their function What is their innovation	APB (abduction and opposition) opponens policis (opposes thumb, draws thumb metacarpal medially to centre of palm and rotates it medially) FPB (flexion) **Median (recurrent branch)** Deep branch of ulnar	2/3

Thenar muscles 2010-2

Question 3: **Model Thumb**	a. Could you please identify the muscles of the thenar eminence, and demonstrate their origins and insertions? b. Please demonstrate the movements produced by the thenar muscles. What nerves innervate these muscles?	APB, FPB, OP (all originate fl ret and scaphoid/trap tubercles) apb inserts lat side base prox phal, op inserts lat 1st mc, and both heads fpb insert lat prox phal. base Op opposes (mc to middle palm, rotates), abd abducts, helps opposition, fl flexes..all recurrent br. Med n, except dp hd fpb…deep br ulnar	3/6 pass

Thumb movements 2005-1

TOPIC: Thumb _____ **NUMBER: 3-4** _____

OPENING QUESTION	What muscles are involved in movement of the thumb?	**COMMENTS**
POINTS REQUIRED	1 MP Flexion: FPL & Br	
	2 MP Extension: EPL & Br	
	3 Palmar abduction: Abductor pollicis brevis	
	4 Radial Abduction: APL & EPB	
	5 Ulnar adduction: Adductor Pollicis	
	6 Flexion abduction: AP & FPB	
	7 Opposition: Opponens & EPL & Br	
PROMPTS		
SECOND QUESTION (if needed)	What is the nerve supply to these muscles?	
POINTS REQUIRED	1 Adductor Policis: Ulnar (C8)	
	2 FPB: variable median or ulnar or both	
	3 Opponens: Both median & Ulnar	
	4 All the others in thenar emminence -Recurrent branch median nerve (T1 & some C8)	
	5 Long Tendons – Radial nerve	
	6	
PROMPTS		

Wrist 2015-2-B

Stem: An 18 year old woman presents to the ED, 3 days following a self-inflicted wrist injury. She complains of numbness in her hand. We will start with Anatomy			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Wrist dissection (photo) **Subject:** Anat LOA: 1	(a) Identify the structures seen in this image	**Median nerve** (16) + branches (17, 18, 19) **Ulnar nerve** (25) + branches (24, 26, 27, 28) Ulnar artery (23) Thenar muscles – APB (2), FPB (13) Adductor pollicis (4), Lumbricals (7, 22) FCR (8), FCU (9), BR (5), FDS (12). FDP (11)	Median nerve, ulnar nerve, AND 6 out of 10 structures
	(b) Describe the median nerve supply in the hand	Motor – **LOAF (1st & 2nd lumbricals, OP, APB, FPB** [superficial head]) Sensory – **palmar surface of lateral 3½ digits** & dorsum of distal halves of these digits	Both motor (LOAF, 2 out of 4 muscles needed to pass) and sensory
	(c) How would you clinically test the median nerve function in the hand?	Motor – **thumb opposition** (OP) or **thumb abduction** (APB) [thumb flexion not reliable as deep head of FPB supplied by ulnar nerve] Sensory – sensation over volar aspect of **lateral 3½ digits** [sensation over thenar eminence preserved as supplied by palmar cutaneous branch of median nerve]	Both motor and sensory

Wrist and hand bones 2014-1-D

Stem: Moving onto **ANATOMY**			
Question 2 Bone – hand / carpal bones **Subject:** Anatomy LOA: 1	(a) Identify the bones in this hand and wrist. (b) Identify the boundaries of the carpal tunnel on this model.	• **Prox row:** Pisiform, triquetrum, lunate, scaphoid • **Distal row:** Hamate, capitate, trapezoid, trapezium • Metacarpals, and phalanges, prox/middle/distal (b) Tubercle **scaphoid** and **trapezoid** laterally, and **pisiform** and **hook hamate** medially	(a) All carpal bones to pass (b) 4/4 bony landmarks to pass
	(c) This patient develops median nerve paresis as a consequence of her fracture. What deficits will she develop? (Prompt: what does the median nerve supply in the hand?)	• **Sensory supply:** radial 3 ½ digits and adjacent palm, excluding central palm which is by cutaneous palmar branch passing over flexor retinaculum • **Motor supply:** thenar muscles except add pollicis and deep head fpb; and lateral lumbricals for digits 2 and 3	(c) Correctly identify sensory supply and one group of muscles.

Wrist and hand XR 2011-1

TOPIC	QUESTIONS	KNOWLEDGE (essential in bold)	NOTES
Q1. Xray hand/ wrist	Identify the bones of the *carpus* on this Xray (prompt "carpus" if start with other bones) Identify the bones of the carpus on the lateral view	**Scaphoid/lunate/triquetrum/ pisiform/ hamate/ capitate/ trapezoid/trapezium** **Lunate, Capitate** and one other	All 8 to pass

Wrist and hand XR 2005-2

TOPIC: X-ray Hand & Wrist _____ **NUMBER: 3.2** _____

OPENING QUESTION	**Please identify the bones of the carpus**	**COMMENTS**
POINTS REQUIRED	1Prox: scap lun triq pis	7/8 identified to pass
	2 Dist: trapm, trapd, cap ham	*
PROMPTS	**What carpal bones can you identify on this lateral film?**	Lunate and capitate to pass
SECOND QUESTION	**Please describe the attachments of the flexor retinaculum**	
POINTS REQUIRED	1Strong fibrous band 2-3 cm transv & horiz	
	2 Prox limit at distal, dominant wrist crease	
	3 Attached to medially: hook of hamate & pisiform	
	4 laterally: ridge of trapezium & scap tubercle	¾ bones to pass
PROMPTS		
THIRD QUESTION (if needed)	**What structures pass through the carpal tunnel?**	
POINTS REQUIRED	1 Carpal tunnel b/w flex. retinac. & carpal bones	
	2 Median n* & all long flexors of fingers and thumb	*essential
	3 4 sup flexors*: mid& ring ant to index&little	*essential
	4 profundus deeper* in one plane, FPindicus separate	*essential
	5 All 8 tendons in one common flexor sheath, but	
	6 FPL passes`thru on its own	Plus one other structure
PROMPTS		

Wrist and hand XR 2004-2

TOPIC:Carpal Bones & Scaphoid_____ NUMBER: 1.1 _____

OPENING QUESTION	Identify the bones shown on this X Ray	**COMMENTS**
POINTS REQUIRED	1 Phalanges	7 of 8 Carpal to pass
	2 Metacarpals	
	3 Carpals	
	4 Radius/Ulna	
	5	
	6	
	7	
PROMPTS	Prompt by Pointing	
SECOND QUESTION (if needed)	Identify the bones of the Carpus on this lateral	
POINTS REQUIRED	1 Lunate	Lunate & capitate to pass
	2 Capitate	
	3 Radius	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)	Describe the blood supply of the scaphoid	
POINTS REQUIRED	1 Vascular Perforators more numerous distally	
	2	
	3	
	4	
	5	
	6	
PROMPTS		

Wrist bones 2005-1

TOPIC: Wrist _____ **NUMBER: 2-3** _____

OPENING QUESTION	Identify the bones of the carpus	**COMMENTS**
POINTS REQUIRED	1 Scaphoid }	8 of 8 to pass
	2 Lunate } (proximal row)	1 prompt acceptable
	3 Triquetrium }	
	4 Pisiform }	
	5 Trapezium }	
	6 Trapezoid } (distal row)	
	7 Capitate }	
	8 Hamate }	
PROMPTS		
SECOND QUESTION (if needed)	What are the attachments of the flexor retinaculum?	4 bones to pass
POINTS REQUIRED	1 Hamate and Pisiform medially – piso-hamate lig	
	2 Trapezium and Scaphoid laterally – crest on trapezium and tubercle of scaphoid	
	3	
PROMPTS		
THIRD QUESTION (if needed)	What are the surface markings?	
POINTS REQUIRED	1 Distal Volar flexion crease at scaphoid and pisiform	
	2	
	3	
	4	
	5	
	6	

Wrist dorsum 2003-1

TOPIC: Boney Wrist _____ **NUMBER: 2AM** _____

OPENING QUESTION	WHAT ARE THE MAJOR BONEY LANDMARKS OF THE DORSUM OF THE WRIST?	**COMMENTS**
POINTS REQUIRED	1 DORSAL TUBERCULE (RADIAL TUBERCULE)	2/2
	2 Ulna styloid	
	3	
	4	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	DESCRIBE THE TENDONS CROSSING THE DORSUM OF THE WRIST	
POINTS REQUIRED	1 EDMINIMI EXT. DIGITORUM ECRL/ECRB ECU EPL/EPB APL EXT INDICIS	6 TO PASS
	2	
	3	
	4	
	5	
	6	
PROMPTS		

Wrist extensor retinaculum 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1: (Photo)	On this photo, identify the structures bound by the extensor retinaculum	**From radial to ulnar, grouped by common synovial sheaths** **APL (2)/EPB (11)** **ECRL (6)/ECRB (5)** **EPL (12)** **Ext indicus (10)/Ext digitorum (9)** **Ext digiti minimi (8)** **Ext carpi ulnaris (7)**	Need 6/9 to pass
Question 2: (Not related to photo)	What is the motor supply of these muscles?.	• All radial/post interosseus nerve (C7, C8, except ECRL which is C6 too)	
Question 3: (Not related to photo)	Describe the sensory supply of the dorsum of the hand.	• Ulnar…medial 1 ½ digits via palmar cut branch • Radial….sup branch..lat half of dorsum of hand excluding distal digits. • Median…dorsum of radial 3 ½ digits, via dorsal branches of palmar dig nerves	

Wrist XR 2009-2

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1: Xray : AP/lateral Wrist	Please identify the bones on these xrays Prompt: identify the carpal on the lateral	Ulna/ulnar styloid , radius/radial styloid . Scaphoid, lunate, triquetral, pisiform. Trapezium, trapezoid, capitate, hamate, metacarpals/phalanges	All carpal bones on AP and 2 others to pass, plus capitate/lunate/distal radius on lateral
	What movements occur at the wrist joint?	Flexion >extension. Add>Abduction Circumduction	All to pass