ACEM PRIMARY 2012/1 Anatomy VIVA March 29 Thursday Morning Session 1 *Candidate Number……..* AGREED MARK……

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: CXR Borders of heart, lung anatomy LOA: 2	a) Identify the structures that make up the mediastinal contours on this CXR b) Describe the lobes of the lungs and their fissures. (note: these may not be actually visible on the CXR we have, but candidates can show where they would be..)	**Right: R Brachiocephalic v, SVC, R pulmonary trunk , R atrium** **Left: Aorta, Pulm trunk, L atrium, L Ventricle** **Both lungs: upper and lower lobes are separated by the oblique fissure** (from T2 posteriorly to 6th costal cart anteriorly). **On the right the upper and middle are separated by the transverse fissure** (at level of R lung hilum along line of 4th rib) Left lung **–** prominent cardiac notch in lower lobe.	Pass criteria: At least 6 of **bolded** to pass? All **bold**
Question 2 Bone: Ankle joint LOA: 1	(a) Demonstrate the bony features of the ankle joint (b) Demonstrate the ligaments that stabilise the ankle joint (name and describe / show attachments)	• Articular surface of **distal tibia** including **medial malleolus**. • **Lateral malleolus** of distal fibula. • Articular surface of **talus** • **Lateral ligament:** From **lateral malleolus**. **Ant. talofibular**(weakest), **Post talofibular**(strong), **Calcaneofibular** • **Medial ligament** (deltoid): Fans out from **medial malleolus to attach to talus, calcaneus and navicular** (4 parts: tibionavicular /tibiocalcaneal /ant. and post tibiotalar) • Ant. and post tibiofibular ligaments also shown on model	All bold All 3 bolded for lat, and medial (at least two attachments)
Question 3 Lateral compartment of leg (Model lower limb) LOA:1	a) Identify the muscles of the lateral compartment of the leg and describe their origins and insertions b) What is their nerve supply? c) What are their actions?	1. **Origins & Insertions** a. F. longus i. Origin: **Head** + **prox** 2/3 lat surface of **fibula** ii. Insertion: **Base of 1st MT** + medial cuneiform **b.** F. brevis **i.** Origin: **inferior 2/3** of lat **fibula** ii. Insertion: Dorsal tuberosity **base of Vth MT** 2. **Superficial fibular** (peroneal) nerve: L5 S1 S2 **Everts** foot / weakly plantarflexes ankle	Fibularis tertius is in the anterior compartment F. longus passes behind the lateral malleolus and crosses the plantar aspect of the foot to insert medially

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 b) Demonstrate where sensation changes may occur if the ulnar nerve is injured in the forearm	**25. ulnar n** 23. ulnar artery 9. flexor carpi ulnaris 26. deep branch of ulnar nerve 11. flexor digitorum profundus **16. median n** **Palmar and dorsal aspects of 1 and a half ulnar fingers**, adjacent palmar and dorsal aspects of hand and ulnar aspect of wrist	Ulnar n and Median n and 2 other structures to pass Finger distribution to pass
Question 5 Discussion: Blood supply of the myocardium LOA: 2	a)Describe the arterial blood supply of the myocardium. Prompt: Tell me about the coronary arteries. b)What is the blood supply of the conducting system? c*)Describe the venous drainage of the heart.*	LCA/RCA from aorta. LCA branches into 1. **LAD** (or AI)– IV groove to apex, anast with PDA in IV groove. Anterior surface both **ventricles +** ant 2/3 **IV septum** 2. **Circumflex** – Coronary groove to posterior surface heart. Supplies **lat LV**. Anast with RCA. PDA in 1/3. (L dominant) **RCA** coronary groove. **RV**, posterior 1/3 IV sept, post. surface, PDA in 2/3 (R dominant) **SA node: RCA** in 60%. LCA in 40%. **AV node: RCA** in 80%. LCA in 20%. AV Bundles: LAD in most. *Coronary sinus into RA receives from* 1. *great cardiac vein: ant IV groove → coronary groove → coronary sinus* 2. *middle cardiac vein: Post IV groove → coronary sinus* 3. *small cardiac vein: inferior surface → coronary groove → coronary sinus* *Some ant cardiac veins into RA.*	Must describe 3 vessels in bold and some description of what they supply to pass. SA/AV node: usually by RCA + AV bundles by LCA to pass *Bonus details*

ACEM PRIMARY 2012/1 Anatomy VIVA March 29 Thursday Afternoon Session 2 *Candidate Number……..* AGREED MARK……

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: CT Brain LOA: 2	a) Identify anatomical features of the brain shown in this CT scan b) Describe the territories that the cerebral arteries supply.	F**rontal, temporal or parietal (or both) and occipital lobes**, including gyri and sulci. Thalamus, internal capsule(ant/post limbs)**,** caudate nucleus **Lateral ventricles** (ant/post horns), choroid plexus posteriorly **Falx cerebri** Branches of Circle of Willis**:** **Anterior cerebral a – Frontal lobe,** medial and superior surface **Middle cerebral a - Temporal lobe and lateral surface** **Posterior cerebral a - Occipital lobe,** inferior surface	B**old to pass** All **bold**
Question 2 Bone: Hip joint LOA: 1	(a) Demonstrate the bony features of the hip joint (b) Describe the ligaments that stabilise the hip joint and demonstrate their attachments.	• **Acetabulum**: Formed by the **ilium, ischium and pubis.** Lunate surface of acetabulum. Acetabular notch. • **Femoral head** • **Iliofemoral: AIIS and acetabular rim(very strong) to intertrochanteric line** • **Pubofemoral:** obturator crest of pubis to blend with medial aspect of iliofemoral lig**.** • **Ischiofemoral:** posterior acetabular rim (weakest), spirals supero-laterally to base of greater trochanter • Transverse acetabular: bridges acetabular notch • Ligament of head (minimal role in stability), acetabular notch to fovea of head	Bold Iliofemoral and one other

Question 3 Posterior compartment of leg (Model leg) LOA: 1	a) On this model demonstrate the muscles of the **posterior** compartment of the **leg**. b) Demonstrate the origins and insertions of the superficial group c) What is their Nerve Supply? d) Describe their action	**1. Superficial**: **Gastrocnemius /soleus/**plantaris a. Gastroc **i. Lat head** from lat aspect **lat femoral condyle** ii. **Medial head from popliteal surface of femur** above medial femoral condyle. iii. **Insertion**-Into posterior surface of **calcaneum** via **calcaneal (Achilles) tendon** (**along with soleus** + plantaris) iv. **Soleus** Origin from prox ¼ fibula + soleal line & middle 1/3 tibia 2. Nerve supply - All **tibial nerve S1 S2** 3. Action: All **plantarflex** ankle. Gastrocnemius flexes leg at knee	Superficial + deep groups divided by transverse intermuscular septum. Nerves and blood vessels run in deep sub-compartment Bolded
Question 4 Photo upper limb: Rotator cuff muscles- actions and nerve supply LOA: 1	a) Identify the rotator cuff muscles in this image b) What are the actions of the rotator cuff muscles? c) What are their innervations?	**Supraspinatus Infraspinatus Teres Minor Subscapularis** 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** 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)	All bold Joint stability plus one bold 2/4 required
Question 5 Portal Systemic Anastamoses LOA: 2	a)Describe the portal-systemic anastamoses. b) When do these become clinically significant?	1. **Oesophageal veins** draining into azygos (systemic) or left gastric vein (portal) 2. Rectal: inf & middle rectal veins into IVC (systemic) and sup rectal vein into inf mesenteric (portal) 3. Umbilical: Paraumbilical (portal) and epigastric veins ant abdominal wall (systemic) 4. Retroperitoneal: visceral (portal) veins on bare areas of organs (liver/ colon/ spleen) and veins of post abd wall (systemic) 1. Obstruction to portal flow from liver disease/ other obstruction (portal hypertension) 2. Large volume portal-systemic shunting (no valves) with dilation 3. Risk of **major haemorrhage (Oesophageal varices)**	Oesophageal + 1 other to pass Bold

ACEM PRIMARY 2012/1 Anatomy VIVA March 30 Friday Morning Session 3 *Candidate Number……..* AGREED MARK……

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: Ureter in the pelvis LOA: 2	a) Describe the path of the ureter in this Xray b) Where does the ureter narrow in the pelvis anatomically c) Give a clinical example of why this may be important	Descends on Psoas m just medial to the **tips of the vertebral T/V processes** to **cross the pelvic brim at the** bifurcation of the common iliac arteries/**SIJ** Bends laterally along the **lateral wall of the pelvis**, towards ischial spines, then turns medially to **enter the base of the bladder** 1.**Pelvic brim** 2. **VUJ** at bladder base Site of ureteric calculus obstruction	B**old to pass** One of two **bold**
Question 2 LOA: 1 Bones : Elbow Joint	(a) Demonstrate the bony features that form the elbow joint articulation (b) Describe the ligaments of the elbow joint and demonstrate their attachments	• Humero-ulnar articulation – between **trochlea** of humerus & **trochlear notch** of ulna • Humero-radial articulation – between **capitulum** of humerus & **head of radius** • **Radial collateral ligament** (lateral) – from **lateral epicondyle** of humerus to **annular ligament** of radius • **Ulnar collateral ligament** (medial) – from **medial epicondyle** of humerus to **coronoid process / olecranon** of ulna - 3 components : *anterior* (strongest), *posterior*, *oblique* bands	Bold to pass
Question 3 Quadriceps muscles LOA: 1 Introduce: "We'll remove the Sartorius muscle and TFL, can you please…"	1. Demonstrate the quadriceps muscles on this model Prompt: what are the origins and insertions?	1. Quadriceps a. *Rectus femoris*: i. Origin: **Anterior inferior iliac spine** + ilium superior to acetabulum **ii.** Insertion: Via **quadriceps tendon** into **tibial tuberosity** *b.* *Vastus medialis* i. Origin: Inter-trochanteric line and medial lip of linea aspera ii. Insertion: **Quadriceps tendon** + **medial patella** /	*Minimum: Correctly identify all four and name origin of Rectus femoris and insertion of all.*

	2. What are their actions? 3. What is their nerve supply?	patellar retinacula c. *Vastus lateralis* i. Origin: Greater trochanter + lateral lip of linea aspera ii. Insertion: **Quadriceps tendon** + patellar retinacula d. *Vastus intermedius* i. Origin: Ant + lat shaft of femur **ii.** Insertion: **Quadriceps tendon** **2. Extend the knee.** **Rectus femoris also assists in hip flexion** **3. Femoral nerve** L2,3,4	
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
Question 5 Nerve supply to face LOA: 2	a) What is the sensory supply of the face? (Prompt: what nerves supply skin sensation on the face?) b) What is the motor supply to facial muscles ?(Prompt: muscles of facial expression)	**Trigeminal nerve branches:** **Ophthalmic**; supratrochlear, supraorbital, infratrochlear, ext nasal, lacrimal..line from angle of eye, dorsum nose **Maxillary;** Zygomatic (temporal, facial), infraorbital, lat. nose **Mandibular;** auric temporal, buccal, mental Small supply to angle of jaw from great auric **Facial nerve, motor root:** Emerges from stylo mastoid foramen, and engulfed by parotid 5 motor branches: **Temporal** (above eyes) **Zygomatic** (below eyes) **Buccal** (upper lip) **Marginal mandibular** (lower lip) **Cervical** (platysma, neck)	**Bold** required 3 of 5 branches required