ACEM PRIMARY 2011/2 Anatomy VIVA **Sept. 15 Morning Session 1** ***Candidate Number……..*** **AGREED MARK……**

TOPIC	*QUESTIONS*	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: **XR: Lateral Cx-spine** **LOA: 1,2**	***Demonstrate the bony features of the Atlas and Axis.*** ***Describe the movements of the head on the neck.***	Ant and post arch of C1. Odontoid peg (dens). Body, lamina, spinous process C2 Rotation occurs at level C1 on C2 (gliding on lateral Atlantoaxial joints and pivoting on median Atlantoaxial joint). Flexion and extension (nodding) as well as lateral flexion and rotation occur at the atlanto-occipital joints.	**5/6** **Both levels of articulation and basic movements described.**
Question 2 **Bone - ulna** **LOA: 1**	***i. Describe the main features of the proximal end of this bone (ulna)*** ***ii. How does this bone articulate with the other bones of the elbow?*** ***iii. What else contributes to the stability of the elbow joint?***	1a) name **bone and side** 1b) **olecranon / coronoid process/ trochlear notch**, Radial notch, supinator crest, ulna tuberosity, interosseous border 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** 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	**1a) bold** **1b) 3 bold + one other** **2) bold + some understanding of basic movement** **3) bold + some idea about ligaments and where they attach**
Question 3 **Model leg** **LOA: 1**	***i. Identify the muscles of the anterior compartment of the leg, describe their attachments*** ***ii. Actions?*** ***iii. What nerves supply the muscles of the anterior compartment of the leg?***	**Tibialis anterior –** Lat condyle & sup ½ lat surface tibia & IOM -> med cuneiform & base 1st MT. Dorsiflexes ankle & inverts foot. **Extensor digitorum longus -** Lat condyle tibia & sup ¾ med fibula & IOM -> middle & distal phalanges lat 4 digits. Dorsiflexes ankle & extends lat 4 digits **Extensor hallucis longus –** middle ant fibula & IOM -> dorsum of base of distal phalanx of hallux. Dorsiflexes ankle & extends hallux. **Fibularis (peroneus) tertius (–** inf 1/3 ant fibula & IOM ->dorsum base 5th MT. Dorsiflexes ankle & everts foot Deep fibular N -> ant compartment (Tib ant L4,5 /Others L5,S1)	**Name and identify first 3** **General principles of origin/insertion required**

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.**
Q 5 : **Discuss: Trigeminal Nerve (CN V)** **LOA 1**	***What are the main branches of the trigeminal nerve*** ***Describe the motor and sensory distribution of the trigeminal nerve***	**Ophthalmic** (V_1) : sensory **Maxillary** (V_2) : sensory **Mandibular** (V_3) : sensory & motor Motor - **muscles of mastication** (*masseter, temporalis, medial pterygoid, lateral pterygoid*) - mylohyoid - anterior belly of digastric - tensor tympani - tensor veli palatini Sensory - **skin of face and anterior scalp** - eyelids / cornea / conjunctiva - nose / mucosa of nasal cavity - paranasal sinuses - ear - mouth / lip / gingiva / palate - tongue (taste to anterior 2/3) - dura of anterior & middle cranial fossa Other (extra info) - distributes postsynaptic parasympathetic fibers of head to their destinations	**Bold to pass** **Motor : bold + 1 other.** **Extra for naming all** **Sensory : bold + 4 others** **Description by division of nerve acceptable.**
	Bonus Question: ***Which nerve branch would you anaesthetize before repairing a lower lip laceration***	**Mental nerve** - as it emerges from mental foramen (terminal branch of inferior alveolar nerve, which in turn is a branch of **mandibular** division).	**Bold to pass**

ACEM PRIMARY 2011/2 Anatomy VIVA **Sept 15. Afternoon Session 2** ***Candidate Number……..*** **AGREED MARK……**

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Q 1 : **X-Ray: Chest** **LOA 1**	***i. Outline the structures that make up the right and left cardiomediastinal borders on this X-Ray***	Right - Right brachiocephalic vein - Superior vena cava - Right pulmonary trunk - Right atrium - Inferior vena cava Left - Left subclavian artery / left brachiocephalic vein - Aortic arch - Left pulmonary trunk - Left atrial appendage - Left ventricle	**7/10**
	ii. Which corresponding part of the lungs lie adjacent to the right and left cardiomediastinum ***Prompt : Which part of the lung forms the right heart border? etc***	Right upper mediastinum - *right superior lobe* Right heart border - *right middle lobe* Left upper mediastinum - *left superior lobe* Left heart border - *left superior lobe (lingula segment)*	**2/4**
	iii. Which part of the heart lies immediately behind the sternum (Prompt : What forms the anterior surface of the heart)	**RV** (RA)	**Bold to pass**
Question 2 **Bone: C1-C2** **LOA: 1,2**	***i. Name these bones. Demonstrate their features and describe the structures stabilising the atlantoaxial joint.***	C1; ant arch, post arch, transverse process, foramen transversarium. C2; Body, odontoid process (dens), transverse process, spinous process. Articular cavity of C1, Tranverse ligament, ant longit lig, cruciate ligament. + others (many)	**Correct ID, 3 bony features of each,** **2/4 stabilising features to pass. Many other ligaments possible.**
	ii. Describe the articular surfaces and the movements that occur at the Atlanto-axial joint?	2 lateral atlantoaxial joints (synovial gliding and a median atlantoaxial joint (pivot type) permit side to side head motion.	**Recognise 3 articulations and movement.**
Question 3 **Model: Leg** **LOA: 1**	***i. Identify the fibularis muscles, describe their attachments. (prompt for prox or distal as required)*** ***ii. ? actions.***	**22 Fibularis longus** – head & sup 2/3 lat fibula -> base 1st MT & med cuneiform. Everts foot & weak plantarflexor of ankle. **23 Fibularis brevis –** inf 2/3 lat fibula -> dorsal surface of tuberosity lat on base 5th MT. Everts foot & weak plantarflexor of ankle. Fibularis tertius **–** inf 1/3 ant fibula & IOM -> dorsum base of 5th MT. Dorsiflexes ankle & aids eversion of foot.	**2 muscles in bold** **prompt for tertius?**

Question 3 cont'd **Model: Leg** **LOA: 1**	***iii. What nerves supply the fibularis muscles?***	**Fibularis longus/brevis –** Superficial fibular N (L5, S1, S2) **Fibularis tertius –** Deep fibular N (L5, S1)	**Bold to pass**
Question 4 **Photo: Abdomen** **LOA: 2**	***i. What structures can you identify on this photograph?***	**IVC** **Aorta** **Ureters** **Bladder** **Common iliacs** **Int/Ext iliac** **Inguinal ligament** **Femoral vessels** **Testicular vessels** **Psoas** **If not already identified, point to ureter and ask "what is this structure?"**	**Need 6 unprompted to pass**
	ii. Describe the course of the ureters, and identify the "narrow" points	25-30 cm long Run from renal hilar inferiorly Marked on Xray as running medial to tips of transverse processes Pass over pelvic brim at bifurcation of common iliacs On lateral wall of pelvis inclining medially to insert post wall of bladder at VUJ Narrow points are PUJ, pelvic brim, VUJ	**4/7 and 2 narrow points to pass**
	iii. What is the arterial blood supply of the ureter?	Arterial – **renal** arteries in upper portion **Gonadal** vessels sometimes in upper Midportion from branches off abdom aorta Inferiorly by branches of common iliacs	**Renal and gonadal to pass**
Question 5 **Discussion: Sensation Ring finger** **LOA: 1**	***i. Please describe the sensory innervations of the hand.***	Ulnar nerve: ulnar 1.5 digits Med nerve: radial 3.5, with wrap over onto dorsum Rad nerve: dorsum 2.5	**Need complete description to pass**
	ii. What dermatomes are represented on the hand	C6 radial side, C7 middle, C8ulnar side	**3 to pass**
	iii. What are the landmarks of the median nerve at the wrist?	FCR and Palm long at prox wrist crease.	

ACEM PRIMARY 2011/2 Anatomy VIVA **16 Sept. Morning Session 3** ***Candidate Number……..*** **AGREED MARK……**

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: **Xray Abdomen:** **LOA: 2**	***i. On this Xray , please demonstrate the transpyloric plane***	**passes through lower border of L1**	**Bold to pass**
	ii. Please outline the course of the ureters	hilum of R just below, L just above L1 Run just inside the tips of transverse processes of lumbar vertebrae, on surface of psoas Over SI joint lying on bifurcation of common iliac To ischial spine and thence into bladder at VUJ	**Bold to pass**
	iii. Outline the expected course of abdo aorta	Enters abdo at T12, Left of midline, Bifurcation at L4 just below umbilici=us	**2/3 to pass**
Question 2: **Bone: Thoracic Vertebra** **LOA 1,2**	***i. Identify this bone, and demonstrate its bony features.***	**Body, Pedicle, Transverse processes,** **Articular facets** - Superior and inferior **Costal facets** - Superior/Inferior costal facets [head of rib]; Transverse costal facet [tubercle of rib] **Spinous process, Lamina** **Vertebral foramen** and space for intervertebral foramina	**8/11**
	ii. What movements are possible at thoracic vertebrae?	**Rotation**, some lateral flexion, very limited flexion + extension	**Bold to pass**
	iii. Demonstrate the ligaments.	**Ant longitudinal, Post longitudinal, Supraspinous, Ligamentum flavum**	**3/4**
Question 3 **Model: Leg** **LOA: 1**	***i. Identify the muscles of the posterior compartment of the leg (calf).***	**Superficial group** **Gastrocnemius** (24a and b) **Soleus** (24c) **Plantaris** (25) **Deep group** **Popliteus** (26) **Flexor Hallucis Longus (FHL)** (29) **Flexor Digitorum Longus (FDL)** (27) **Tibialis Posterior (TP)** (28)	4/7 bold to pass
	ii. Describe the proximal attachments of the muscles of the superficial compartment	**Gastrocnemius**; lateral head lateral aspect of lateral femoral condyle. Medial head popliteal surface of femur superior to medial condyle **Soleus**; posterior aspect of superior quarter of fibula, soleal line and middle third of medial border of tibia, with a tendonous arch between these bony attachments **Plantaris**; Inferior end of lateral supracondylar line of femur, and oblique popliteal ligament	2/3 to pass

Question 3 cont'd **Model: Leg** **LOA: 1**	***iii. Describe the actions of the muscles of the deep compartment***	**Popliteus**; - Pulls lateral meniscus posteriorly during knee flexion. - Assists the posterior cruciate ligament in preventing anterior displacement of femur on tibial plateau when standing with knee flexed. - insignificant knee flexor - unlocks knee – lateral rotation femur **FHL** - flexes all joints of great toe. - Weak plantar flexor, supports medial longitudinal arch of foot **FDL** - flexes lateral 4 digits. - supports lateral longitudinal arches of foot **TP** - plantar flexes ankle, - inverts foot	**¾ correct to pass**
Question 4 **Photo: Axilla** **LOA: 1**	***i. Please describe the boundaries of the axilla*** ***ii. What are the contents 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 **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**	General description of all required **3/5 to pass**
Question 5: **Discuss: CN's III, IV, VI** **LOA 1,2**	***i. What is the nerve supply to the extra-ocular muscles?*** ***ii. What other structures are supplied by the III CN?*** Extra question? ***iii. What is the effect of a complete III N lesion?***	**III = Oculomotor** - **Sup, inf, medial rectus muscles and inf oblique +** Levator palpebrae superioris - **Parasympathetic** thru ciliary ganglion to smooth muscle of **sphincter pupillae and ciliary muscle**. **IV = Trochlear** - **Superior oblique** **VI = Abducens** - **Lateral Rectus** - Resting position = depressed/abducted eye - Ptosis, dilated pupil	**i) Bold to pass** **ii) Sphincter and cilary muscle** **iii) bonus**