ACEM Primary Examination Vivas > Anatomy > Lower Limb

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Dermatomes 2007-1

OPENING QUESTION	Describe the dermatomes of the lower limb	COMMENTS
POINTS REQUIRED	1 indicate (?on self) L1,2,3,4,5 winding around leg	needed
	2 S1 S2 back of leg s1 becomes lateral foot, L5 medial foot	
	3 axial line down postero medial aspect of leg	
	5	
PROMPTS		
SECOND QUESTION (if needed)	Please describe the cutaneous nerves of the lower limb	5 facts in total to pass
POINTS REQUIRED	1 lateral cutaneous nerve of thigh L2,3 anterior cutaneous branch of femoral nerve L2-4 Intermediate and medial femoral cut nerves Ilio-inguinal Obturator Posterior cutaneous S1-3 Most of thigh	
	2 saphenous nerve (from femoral) L3,4 (antero medial leg) lateral sural cutaneous n and sural (postero lateral leg)	
	3 fibula (peroneal) nerves anterolateral leg and dorsum of foot	
	4 calcaneal branches of tibial and sural nerves lateral and medial plantar nerve from tibial (sole)	
	5 deep fibular (deep peroneal) nerve L5 in first web space	

Myotomes 2006-1

TOPIC: Femoral nerve and myotomes _____ **NUMBER:** _____ Fri 5

OPENING QUESTION	Could you outline the lower limb myotomes?	**COMMENTS**
POINTS REQUIRED	1 L2 & 3 Hip flexors & Adductors	
	2 L3 & 4 Knee extensors & Hip Abductors	
	3 L4 & 5 Hip extensors	
	3 L5 & S1 Knee flexors	
	4 L4 & 5 Ankle and long dorsi flexors	
	5 S1 &2 Plantar flexors	
	6 Eversion L5 & S1	
	7 Inversion L4	5 of 7 to pass
PROMPTS	What is the innervation of the muscles of the ……. etc?	
SECOND QUESTION (if needed)	What is the motor distribution of the femoral nerve?	
POINTS REQUIRED	Courses through between the psoas and iliacus supplying both.	
	Passes into the femoral canal and begins to divide into its muscular branches in the femoral triangle supplying quadriceps femoris and articularis genu	Naming quads to pass. Naming specific muscles or added information gains extra credit.
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED		
PROMPTS		

Myotomes 2004-2

TOPIC: limb myotomes _____ **NUMBER: 3.4** _____

OPENING QUESTION	Describe the myotomes of the lower limb	**COMMENTS**
POINTS REQUIRED	1. hip flexion L23, extension L45 2. knee extension L34 flexion L5 S1 3. ankle flexion L4 5 extension S 1 2 4. inversion L4 eversion L5 S 1 5. big toe L5 S 1 extension S 1 2	
PROMPTS		
SECOND QUESTION (if needed)	What functional deficit results from injury to the common femoral nerve and why?	
POINTS REQUIRED	1. foot drop – loss of innervation of extensor muscle function (tib Ant, ext dig long, peroneus tertius, EHL) 2. high stepping gait	3/4
	2. inability to evert foot - peroneus longus and brevis lost (sup peroneal nerve)	1/2
	3. sensory loss : cleft of first toe sup peroneal N. lower lateral part leg & dorsum of foot deep peroneal – 1st web space	
PROMPTS		

Venous drainage 2010-1

Question 5: Discussion	Describe the superficial venous drainage of the lower limb	Dorsal v arch of foot drain to GSV, ascends ant to MM, then behind med fem condyle (hand breadth post to patella), then up med thigh through fascia lata in saph opening into fem V. Numerous valves, perforators to deep system and anastomoses with SSV. Laterally, Small SV arises from dorsal venous arch, ascends behind LM, lateral to Achilles, penetrates fascia at mid-line, between heads of gastroc to join popliteal vein	1.Identify MM, fem condyle and saph opening landmarks of GSV 2.Name SSV and general location 3.Identify connection with deep system via perforators

Hip Joint 2003-2

TOPIC 2	Hip Joint Model	
QUESTIONS AND POINTS REQUIRED	On this model, demonstrate the factors maintaining stability of the hip joint: Bony: acetabular socket reinforced by labrum Ligaments: capsule, iliofemoral, ischiofemoral, pubofemoral ligaments Muscles: short muscles esp. gluteus medius and minimus	Acetabulum and labrum, 3 ligaments to pass
	Describe the attachments of the iliofemoral ligament Anterior inferior iliac spine to intertrochanteric line	Attachments to pass
	Demonstrate the least stable position of the hip Flexion and adduction	All to pass

Hip Joint Stability 2012-1

Question 2 Bone: Hip joint LOA: 1	(a) Demonstrate the bony features of the hip joint	• **Acetabulum**: Formed by the **ilium, ischium and pubis.** Lunate surface of acetabulum. Acetabular notch. • **Femoral head**	Bold
	(b) Describe the ligaments that stabilise the hip joint and demonstrate their attachments.	• **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	Iliofemoral and one other

Hip Joint Stability 2007-2

TOPIC: Bone: femur & acetabulum _____ **NUMBER: 2** _____

OPENING QUESTION	Please name this bone & describe its proximal features	**COMMENTS**
POINTS REQUIRED	1 femur: head, neck, trochanters (2), shaft	5/7 to pass
	2 Fovea, intertrochanteric crest	
	3 intertrochanteric line	
PROMPTS		
PROMPTS		
SECOND QUESTION (if needed)	What factors contribute to the stability of the hip joint?	Ligs-3-(iliofemoral),muscles + bony features to pass + socket
POINTS REQUIRED	1 Ligaments: winding parallel fibres (Orbicular ligs)	
	2 Transverse acet. ligament & acetabular labrum complete acetabular rim over whole socket	
	3 Intrinsic ligaments of joint: iliofemoral (strongest), ischiofemoral & pubofemoral	
	4 Muscles: lateral & medial rotators (overlying rectus)	
	5 Anteriorly muscles weaker than ligament, reverse posteriorly	
	6 Bone; ilium lies directly over femur – transfer of weight	
PROMPTS		

Inguinal Canal 2017-2-D

Stem: Moving on to Anatomy. On examination he has a tender lump in his groin.			
Question 2 Inguinal canal **Subject:** Anat LOA: 1 *Moore 7th edition P202-213 inc. table B2.1*	(a) Describe the anatomy of the inguinal canal *Prompt – what are the boundaries?*	Oblique, inferomedial passage, 4cm long, superior to medial ½ of inguinal ligament. **Deep (int) ring superior to middle of ing lig**, lateral to inf epigastric a. **Superficial (external) ring superolateral to pubic tubercle** (split in external oblique aponeurosis) Ant wall – ext oblique aponeurosis Post wall - transversalis fascia (+conjoint tendon) Roof - transversalis fascia, internal oblique and transversus abdominis Floor – inguinal ligament	Locations of deep and superficial rings Basic concepts of walls, roof and floor
	(b) What is the difference between a direct and an indirect inguinal hernia?	**Direct (acquired)** Weakness of anterior abdominal wall, traverses medial 1/3 of canal, exits superficial ring lateral to cord, rarely enters scrotum **Indirect (congenital)** Traverses entire canal within patent processus vaginalis, goes from internal to external ring, inside the cord, commonly into scrotum/labium majus	Basic concepts of direct and indirect hernias and their different directions
	(c) What underlying structures may be involved in this lump?	**Small bowel,** large bowel, mesentery / omentum, other abdominal viscera(bladder, ovaries, appendix)	Bold plus 1

Pelvis 2016-1-C

Stem: Moving onto Anatomy. On further questioning, she has been having increasing hip pain			
Question 4 Pelvis - bone **Subject:** Anat LOA: 1	1. Identify the bony landmarks of the pelvis	**3 bones – ilium, ischium, pubis** Surface – **iliac crest, ASIS, AIIS, ischial tuberosity**, ischial spine, PSIS, PIIS, **symphysis pubis** Joints **– SI joints, acetabulum/femur, symphysis pubis** Other – **pubic rami (4)**, ala of ilium, greater/lesser sciatic notches, obturator foramen	Bold
	2. Identify on the model the ligaments of the hip joint and their attachments.	**Iliofemoral (AIIS/acetabular rim – intertrochanteric line), pubofemoral (obturator crest – capsule & iliofemoral lig.),** ischiofemoral (acetabular rim – base greater trochanter)	Bold
	3. Where might you find a pathological fracture on the model?	Pubic rami, neck of femur, proximal shaft	one

Pelvis 2013-2-D

Stem: Moving on to Anatomy: On examination, the patient is very tender over his pelvis.			
ANATOMY Question 2 LOA: 1	1. Demonstrate the major anatomical features of the pelvis.	Pubic symphysis, inferior and superior pubic rami, obturator foramen, acetabulum, iliac crest, sacro-iliac joint, sacrum.	6 major features to pass
	2. What is this? (AIIS)What attaches here? What is this? (ASIS) What attaches here?	AIIS- Rectus femoris ASIS- Sartorius	3/4 to pass
	3. Describe the course of the iliac arteries.	**Common Iliac origin from aorta L3-5** Follows medial border of Psoas to pelvic brim Divides at level of L5S1 **Internal Iliac artery** enters pelvis **External Iliac artery** follows Iliopsoas ends at the inguinal ligament and becomes **femoral artery** at **mid-inguinal point**	Bold to pass

Pelvis 2010-2

Question 1 **XR: Pelvis**	Identify the bony features of this x-ray	**Iliac crest**, Ala of ilium **Sacro iliac joint, Sacrum** Lumber vertebrae Pelvic brim Anterior superior iliac spin Anterior inferior iliac spine Ischial spine Ischial turberosity **Obturator foramen** Acetabular fossa **Superior rami** **Inferior rami** Symphysis pubis	(a) **6 Bold** + 3 others to pass
	Describe the anatomy of the iliopsoas muscle.	**Iliopsoas** – consists of **Iliacus** & **Psoas major** **Psoas major:** Superior attachment (a) Transverse process of lumbar vertebrae (b) Sides of vertebral bodies T12-L5 (c) Intervertebral discs T12- L5 Inferior attachment (a) **Single tendon to lesser trochanter of femur** Innervation (a) Anterior rami of L1, L2, L3 **Iliacus** Superior attachment (a) Superior 2/3 of iliac fossa (b) Ala of sacrum (c) Anterior sacro-iliac ligaments Inferior attachment (a) **Lesser trochanter of femur and shaft inferior to it** (b) Psoas major tendon Innervation (a) **Femoral nerve** L2- L4	Name two muscles and origin and insertion

Pelvis 2010-1

Question 2:
 	
Bone: Pelvis
	a. What bones make up this structure, and what are their major features?	a. Pelvis
		• **Acetabulum** (with acetabular notch)
		• **Obturator foramen** (with obturator groove)
		• **Ilium**
		  ○ Ala
		  ○ **Iliac crest**
		  ○ Inferior, anterior and posterior gluteal lines
		  ○ **Anterior superior**, anterior inferior, posterior superior and posterior inferior iliac spines
		  ○ Greater sciatic notch
		• **Ischium**
		  ○ **Ischial spine**
		  ○ Lesser sciatic notch
		  ○ Ischial tuberosity
		  ○ Ischiopubic ramus
		• **Pubis**
		  ○ **Superior pubic ramus**
		  ○ Pubic symphysis
			a. Need all bold to pass, and able to demonstrate aspects of bony parts

	b. What are the lateral rotators of the femur, and where do they originate?	b. Lateral rotators of hip
		
		• **Piriformis**
		  ○ anterior sacrum and sacrotuberous ligament
		• **Obturator internus / (externus)**
		  ○ Pelvic/ext surface of obturator membrane and surrounding bones
		• **Superior gemellus**
		  ○ Ischial spine
		• **Inferior gemellus**
		  ○ Ischial tuberosity
		• **Quadratus femoris**
		  ○ lateral border of ischial tuberosity
		• **Gluteus maximus** (minor)
		  ○ ilium posterior to posterior gluteal line, dorsal surface of sacrum and coccyx, sacrotuberous ligament
			Need 2 to pass

Question 3:	a) Using this model, describe the arterial supply	Main coronary vessels arise from corresponding aortic	5/9 [illegible]

Pelvis 2005-2

TOPIC: Bone:Pelvis **NUMBER 3.3**

OPENING QUESTION	**Identify the main features of this bone?**	**COMMENTS**
POINTS REQUIRED	3 bones*	*essential
	Acetabulum*, greater and lesser sciatic notches, ischial tuberosity, ischial spine, pubic tubercle, ASIS, obturator foramen, iliac crest, pubic rami, SI joint	7 to pass
PROMPT	**Identify the bones that make up this structure**	
SECOND QUESTION	**Describe the origin and course of the sciatic nerve.**	
POINTS REQUIRED	1L4,5,S1,2,3* from the triangular sacral plexus form from the ant divs of these nn to eventually be the tibial portion of the sciatic while the peroneal portion comes from post divs of L4,5, S1,2	4/7 to pass
	2 They join in pelvis, and exit under piriformis* (line b/w PSIS & tip of coccyx) thru gtr sciatic notch*	
	3 lies on ischium over post acetabulum*, next to bone b/w isch tuber & PSIS	
	4 under glut max* in buttock b/w gtr troch & isch tuberosity	
	5 vert down with hamstrings*	
	6 upper popliteal fossa* > tibial & peroneal nn.	
PROMPTS		

Pelvis XR 2008-1

OPENING QUESTION	**Describe the major bony features seen on this Xray**	COMMENTS
POINTS REQUIRED	1 Ilium – crest, ASIS, AIIS, acetabulum (pt), SI jt	15 features to pass
	2 Ischium – body, ramus, tuberosity, spine,	
	3 Pubis – symphisis, inf ramus, sup ramus, tubercle, pectineal line	
	4 Sacrum – vertebral foramina, L5-S1 jt	
	5 Coccyx	
	6 Femur – head, neck, gter trochanter, lesser trochanter	
	7 Acetabulum, obturator foramen,	
PROMPTS	Which bones can you see? Where do fractures usually occur?	
SECOND QUESTION (if needed)	**Demonstrate the bony attachments of the main muscles which flex the hip**	
POINTS REQUIRED	1 Flexors – Iliacus – iliac crest, fossa, ala sacrum, ant SI lig to psoas maj, Psoas maj – T12-L5 vert, discs, transv proc to lesser troch fem, Psoas min – T12 – L1 to pec line, iliopect eminence Rectus femoris – AIIS, ilium) Pectineus (superior ramus of pubis) Sartorius (ASIS)	Iliopsoas and one other

Pelvis XR 2008-1

	Describe the major bony features seen on this Xray	**COMMENTS**
	1 Ilium – crest, ASIS, AIIS, acetabulum (pt), SI jt	15 features to pass
	2 Ischium – body, ramus, tuberosity, spine,	
	3 Pubis – symphisis, inf ramus, sup ramus, tubercle, pectineal line	
	4 Sacrum – vertebral foramina, L5-S1 jt	
	5 Coccyx	
	6 Femur – head, neck, gter trochanter, lesser trochanter	
	7 Acetabulum, obturator foramen,	
	Which bones can you see? Where do fractures usually occur?	
	Demonstrate the important ligament attachments of the hip joint	2 out of 4 to pass
	1 Iliofemoral lig – strong, ant sup ASIS, inf intertrochanteric line	
	2 Pubofemoral – med – obturator crest pubis inf-lat to merge with capsule deep to iliofemoral lig	
	3 Ischiofemoral – post, weakest of 3, from ischial pt of acetabular rim superolat'ly to femoral neck, med to base gter troch	
	4 Lig of head of femur – from acetabular notch to fovea for lig of head femur	

Gluteal Region 2013-2-B

Question 4 ANATOMY LOA: 2	Moving on to anatomy a. This is a photograph of the gluteal region. Identify the labelled structures. Point to piriformis if not identified.	**23. Sciatic nerve** – tibial part 1 – common fibular part **2. gluteus maximus** 3. gluteus medius 4. gluteus minimus 5. greater trochanter of femur 6. inferior gamellus 7. inferior gluteal artery 8, 21, 22. inferior gluteal nerve 9. internal pudendal a 10. ischial tuberosity 11. nerve to obturator internus 13. obturator externus 14. obturator internus **15. piriformis** 16. posterior femoral cutaneous nerve 17. pudendal nerve 18. quadratus femoris 19. sacrotuberous ligament 20. superior gamellus	**All three bolded** to pass and at least two other named structures.
	b. Describe the actions of the gluteus maximus muscle.	**Straightens the leg at the hip** during walking, running, climbing. Assists in raising from a sitting position. Lower part acts as adductor and external rotator of lower limb. Tensor of the fascia lata and by its connection with the iliotibial band, steadies the femur on the tibia during standing when the extensor muscles are relaxed.	**Bold to pass**
	c. Describe the course of the sciatic nerve in the gluteal region and leg.	Enters the gluteal region via the greater sciatic foramen **inferior to piriformis** and **deep to gluteus maximus**; descends in midline of the posterior thigh deep to biceps femoris; **bifurcates into tibial and common fibula nerves at apex of popliteal fossa.**	**Two of three bolded to pass**

Gluteal Region 2012-2

Question 4 **Model** Lower limb - buttock region LOA: 1	The gluteus maximus has been removed. Please identify the main structures seen here	**Sciatic nerve** **Piriformis** Gamelli – sup/inf Obt internus Gluteus medius Ischial tuberosity/greater troch Quadratus femorus, obt ext	2 bold and 2 others to pass
	Can you demonstrate the course of the sciatic nerve and name the muscles that it supplies in the thigh	**Muscles of the posterior compartment of the thigh** - Common fibular part – supplies short head biceps femoris - Tibial part – supplies the rest, namely; Long head biceps femoris Semitendinosus Semimembranosus Hamstring portion of adductor magnus	2 of 4 muscles and nerve is deep to hamstrings and bifurcates to named terminal branches

Gluteal Region 2010-2

Question 4 **Photo: Gluteal Area**	a) This is a photograph of the gluteal region. Identify the structures. Prompt if needed – what is this (Sciatic Nerve)	15-**Piriformis** **Sciatic N**: 23-Tibialpart; 1-Common Fibular (Peroneal) part 2-**Gluteus maximus**; 16-Post Fem Cutaneous N 13-Obturator Externus 18-Quadratus femoris 7-Inferior gluteal art. 17-Pudental N; 9-Internal Pudental art; 11-N to Obturator Internus 20-Superior Gamellus; 14-Obturator Internus 6-Inferior Gamellus 21-; 22-; 8-Inferior gluteal N 3-Gluteus medius; 4-Gluteus minimus 5-Greater Trochanter Femur 19-Sacrotuberous Ligt 10-Ischael Tuberosity	**2 Bold** plus 2 others to pass
Question 4 cont'd **Photo: Gluteal Area**	b) Describe the course of the Sciatic Nerve, and the muscles it supplies.	Enters gluteal region via greater sciatic foramen **inferior to piriformis** and **deep to gluteus maximus**; decends in midline posterior thigh deep to biceps femoris; **bifurcates** into **tibial and common fibula** (perioneal) nerves at **apex of popliteal fossa** No supply in gluteal region. Supplies all **muscles of posterior compartment of thigh** (common fibula short head biceps, tibial division all the rest)	**Bold** to pass

Gluteal region 2007-1

OPENING QUESTION	What structures are visible in this buttock dissection?	COMMENTS
POINTS REQUIRED	1 sciatic nerve (23)	mandatory
	2 piriformis (15)	mandatory
	3 gamelli sup (20) and inf (6)	
	4 post cutaneous nerve of the thigh (16)	
	5 gluteus medius (2)	6 to pass
	6 any other	
PROMPTS	Identify the sciatic nerve and piriformis	
SECOND QUESTION (if needed)	Describe the course of the sciatic nerve in the thigh	
POINTS REQUIRED	1 Leaves gluteal region at midpoint of greater trochanter and ischeal tuberosity	2/4 to pass
	2 Passes deep to long head of biceps	
	3 Lies on adductor Magnus	
	4 Generally divides in lower third (12% common fibular branch passes thru piriformis), often divides early	
PROMPTS	Where does it divide and into what	
THIRD QUESTION (if needed)	Describe its motor distribution in the thigh	
POINTS REQUIRED	1 tibial branch – hamstrings and part of adductor Magnus	Pass if say generic hamstrings

Femoral artery 2012-2

Question 3 **Photo** Femoral artery LOA: 1	Using this photograph describe the course and relationships of the femoral artery Prompt	Continuation of external iliac A. , enters femoral triangle **deep to midpoint of inguinal ligament** (midway between ASIS and pub tub) **lateral to femoral vein**, posterior/ deep to fascia lata, anterior **/ lies on (1 of 2)** iliopsoas and pectineus, **medial to femoral nerve.** Fem artery continues down thigh deep to Sartorius and **pass through adductor canal and becomes popliteal art at adductor hiatus**	All bold
	Describe the branches of the femoral artery Prompt: what branch supplies the head of femur	**Profunda femoris** ("**deep artery of thigh**"!) branches off post-lat in triangle to supply thigh, passes behind add longus. Gives med and lat cx fem arteries. Med cx fem supplies NOF 4 branches anterior part in fem triangle (superf epig, superf cx iliac, superf and deep external pudendal)	Profunda and 1 other.

Femoral nerve 2004-2

TOPIC: Femoral Nerve _____ **NUMBER: 2.5** _____

OPENING QUESTION	What are the borders & contents of the femoral triangle	**COMMENTS**
POINTS REQUIRED	1 Boundaries: Sartorius, Adductor Longus, Inguinal ligaments	
	2 Floor: Iliacus, Psoas, Pectineus, Adductor Brevis	
	3 Contents: Femoral Nerve, Artery, Veins	
PROMPTS		
SECOND QUESTION (if needed)	What are the branches of the femoral nerve?	
POINTS REQUIRED	1 Nerve to sartorius	
	2 Medial Femoral Cutaneous nerve	
	3 Intermediate femoral cutaneous nerve	
	4 Nerve to Rectus Femoris	
	5 Nerve to vastus medius	
	6 Nerve to Vastus Lateralis	
	7 Nerve to vastus intermedius	
	8 Saphenous nerve	
PROMPTS		

Femoral Triangle 2017-2-C

Stem: Moving on to Anatomy. A Femoral central line is inserted.			
Question 4 Femoral triangle (Mc Minns Atlas Photo 365A) **Subject:** Anatomy LOA: 1	(a)Identify the boundaries of the femoral triangle on this image	**Superior: Inguinal ligament (11)** **Medial: Medial border of add longus (1)** **Lateral: Sartorius (23)** **Floor: Iliopsoas (not seen) and pectineus (19)**	**3/4** Boundaries with structure
	(b)Name and demonstrate the contents	**Femoral nerve (5), artery (4) and vein (6)** (medial - lateral) Deep inguinal lymph nodes (29), lymphatics (15)	**All 3 bold**
	(c)Which spinal roots is the femoral nerve derived from?	**L2 L3 L4**	**Bold**
	(d)What anterior thigh muscles does the femoral nerve innervate?	Sartorius, articularis genu, and quadriceps including rectus femoris, vastus medialis, vastus lateralis and vastus intermedius	**4/6**

Femoral Triangle 2016-2-C

Stem: Moving onto Anatomy. A femoral central line needs to be placed.			
Question 4 Femoral triangle photo – structures and relationships	(McMinn Atlas photo 365A) Name and indicate the boundaries of the femoral triangle	**Superior: Inguinal ligament;** **med – medial border of add longus;** **lateral: Sartorius;** **floor iliopsoas & pectineus**	4/5
Subject: Anat LOA: 1	Name and demonstrate the contents	**Femoral Nerve, artery and vein** (nodes & lymphatics)	All 3
	What does the femoral nerve supply?	Muscle: (L2,3,4 post roots) iliopsoas (hip flexion) & quads (knee extension); Superficial division has 2 cutaneous(intermed & medial cutaneous N thigh) and 2 muscular divisions (sartorius & pectineus). Deep division: muscular (quads: rectus femoris, vastus med, vastus lateralis & vastus intermedius) & cutaneous saphenous (skin medial leg and foot) Proprioception hip joint from nerve to rectus femoris; Nerve to vastus medialis provides proprioception to knee	**Quads and sensory thigh**

Femoral Triangle 2014-2-D

Stem: Move onto Anatomy. You insert a femoral venous line.			
Question 2 Femoral Triangle (photo) **Subject:** Anat LOA: 1	Demonstrate the boundaries of the femoral triangle. What are the contents of the femoral triangle. What surface markings help would you look for when trying to locate the femoral vein? Which veins drain into the common femoral vein	**Inguinal ligament** (11), medial border of **Sartorius** (23) and lateral border of **adductor longus** (1) form the triangle, **pectineus** (med) and **iliopsoas** (lat) form the floor. Contents = **femoral vein** (6), **artery** (4) **and nerve** (5) (med to lat) and deep inguinal lymph nodes. **Artery is found below inguinal ligament, midway between ASIS and pubic tubercle, vein is just medial to artery** Continuation of the femoral vein, popliteal vein, receives **profunda femoris** and **great saphenous vein** (7), ends posterior to the inguinal ligament where it becomes the external iliac vein. Also receives superficial epigastric vein (27), superficial circumflex iliac vein (25) and superficial external pudendal vein (28).	3/5 to pass all content 3/3 to pass bold

Femoral triangle 2009-2

Question 3: Model: Femoral triangle Muscles and contents	{Using the model} Demonstrate the boundaries of the femoral triangle Demonstrate the contents What does the femoral nerve supply?	Sup- ing lig; Med- add longus; Lat- Sartorius Floor- iliopsoas, Pectineus. Fem nerve, art, vein [Nodes and lymphatics] Musc- ant thigh esp quadriceps Artic- hip & knee. Sens- antmed thigh. Continues as saphenous nerve to supply antmed knee, leg, foot.	4/5 All Quads and skin over ant-med thigh to pass

Femoral triangle 2008-1

OPENING QUESTION	Identify the boundaries and contents of the femoral triangle in this photo	COMMENTS
POINTS REQUIRED	1 Ing lig, add long and Sartorius form triangle, pectineus (med) and iliopsoas (lat) form floor	4/5 to pass
	2 fem vein, fem art and fem nerve (med to lat)	3/3 to pass
	3	
	4	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	Describe the branches and course of the femoral artery.	
POINTS REQUIRED	1 4 **superficial branches** in fem triangle (superf epig, superf cx iliac, superf and deep pudendal)	The 3 general points to pass
	2 Profunda femoris (“**deep artery of thigh**”!) branches off post-lat in triangle to supply thigh, passes behind add longus. Gives med and lat cx fem arteries. Med cx fem supplies NOF	
	3 Fem artery continues down thigh deep to Sartorius and pass through adductor canal and becomes popliteal art at adductor hiatus	
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED	1	
	2	
	3	
PROMPTS		

Femoral triangle 2006-1

TOPIC: Femoral triangle photo - position of femoral artery **NUMBER:** TH ~~PM~~ AM

3

OPENING QUESTION	Identify the Femoral Artery and related structures	**COMMENTS**
POINTS REQUIRED	1 Fem Art	
	2 Fem Nerve and Vein (and canal)	
	3 Medial muscles: Add longus, pectineus	
	4 Lateral Mus: Iliacus, sartorius	
	5 Inguinal ligament	
	6 Deep is Psoas ligament	
	7 Deeper is Hip capsule	
PROMPTS		5 of 7 to pass
SECOND QUESTION (if needed)	Describe the surface markings of the Fem Artery in the femoral triangle	
POINTS REQUIRED	1 Mid Inguinal point	
	2 mid way between Pub symphysis and ASIS	All correct to pass
	3 exits distally under sartorius	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)	Describe the anastomoses associated with the femoral artery	
POINTS REQUIRED	1 trochanteric (head of femur) via med and lat fem c-flex	
	2 cruciate (lessr trochanter) as above with inf glut atr	
	3 geniculate (popl fem and tibial arts)	Extra detail
	4	
	5	

Femoral triangle 2005-1

TOPIC: Model: Femoral Triangle _____ NUMBER: 2.1 _____

OPENING QUESTION	**Identify the muscles that make up the femoral triangle and describe its contents.**	**COMMENTS**
POINTS REQUIRED	Sartorius* Adductor longus* Iliacus Psoas Pectineus Adductor longus Contents: (medial to lateral) Femoral canal Femoral vein* Femoral artery* Femoral nerve*	*essential to identify plus 2/3 of other muscles to pass
SECOND QUESTION	**Please describe the course of the femoral artery from the inguinal ligament to the popliteal fossa**	
POINTS REQUIRED	1 Art enters thigh at midinguinal point* (mid b/w ASIS & pubic symp on psoas tendon overlying capsule of hip jt)	*essential
	2 Runs deep to sartorius at lower end of triangle*	
	3 Enters adductor canal*	
	4 Anterior to femoral vein (post to saphenous nerve)	
	5 Passes into popliteal fossa through adductor hiatus* in adductor magnus	
PROMPT	**At which point does it enter the thigh?**	
PROMPTS	**Please name the branches of femoral artery in the femoral triangle.**	
	Superficial cutaneous branches: Superficial circumflex iliac Superficial epigastric Superficial external pudendal Deep external pudendal Profunda femoris	Mention existence of cutaneous branches and name profunda
PROMPTS		

Femur 2017-1-D

Stem: Moving onto Anatomy. An X-ray of his right hip was ordered.			
Question 2 Hip (x-ray) **Subject:** Anatomy LOA: 1	a) Identify the proximal landmarks of the femur on this x-ray	**Head, neck, greater & lesser trochanters, shaft**	Bold to pass
	b) Describe the blood supply to the head of the femur	Medial and lateral **circumflex** femoral arteries • Usually branches of deep artery of thigh (profunda femoris) • These branch to form retinacular arteries (medial > lateral), feed under posterior unattached capsule (medial) or through iliofemoral ligament (lateral) • **Distal to proximal** Artery to head of femur – branch of obturator artery (less important)	Bold to pass
	c) What does the femoral nerve supply?	• **Anterior thigh muscles (quadriceps)** • Pectineus, Sartorius, iliacus • Articular branches to hip and knee joints • Cutaneous branches to anteromedial thigh • Terminal cutaneous branch is saphenous nerve to anteromedial knee, leg, foot	Bold plus one sensory

Femur 2015-2-D

Stem: A 30 year old man has sustained a fractured femur in a motor bike accident. Starting with anatomy.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Femur - Bone **Subject:** Anat LOA: 1	Describe the bony features of the middle and lower end of the femur.	Linea aspera Medial supracondylar ridge/line - inferior continuation of the medial lip of the linea aspera, interrupted to allow passage of the femoral artery, ends in the adductor tubercle Lateral supracondylar ridge/line- descends to the lateral epicondyle. Medial condyle Lateral condyle Intercondylar fossa Adductor tubercle Attachment of the medial ligament	**5/8 to pass**
	Which muscles attach to the linea aspera?	Vastus medialis, vastus lateralis, adductor brevis, adductor longus, adductor magnus, and short head of the biceps femoris	**3/6 to pass**
	Which artery is most likely to be damaged by a fracture of the midshaft of the femur?	**Profunda femoris**	**Bold**
	(Prompt : what is the course of the femoral artery through the thigh?)	(use this as supplemental question for better candidates)	

Femur 2015-1-B

Stem: Moving onto Anatomy. On secondary survey, you suspect a fractured femur			
Question 3 Femur (bone) **Subject:** Anat LOA: 1	Please demonstrate the main bony features of the proximal femur	**Femoral head** / fovea for lig of head / **Greater trochanter / lesser trochanter** / Neck / intertrochanteric line (anterior)/ Intertrochanteric crest (posterior) / quadrate tubercle /pectineal line / Gluteal tuberosity / linear aspera with medial and lateral lips	Pass = bold + 3 others
	Demonstrate on the model the muscular attachments to the greater trochanter	MM originating ; 1. Vastus lateralis MM Inserting ; 1. Gluteus max (some fibres only, most to ileotib tract) 2. Glut med; To lat surface 3. Glut min; to ant surface 4. Piriformis; to sup border 5. Obturator internus; to med surface (trochanteric fossa) 6. Sup and inf gemelli; to med surface	Pass = 4/7
	The patient has a subcapital (intracapsular) fractured neck of femur. What is the most concerning complication of this type of fracture and why does this occur?	**Avascular necrosis of femoral head** Hip joint has **dual supply** ; 1. **Med & lat circumflex femoral aa**, usually branches of deep aa of thigh (sometimes can arise direct from fem aa) 2. **aa to head of femur**, branch of obturator aa, traverses lig of head (often small/inadequate)	Pass = bold
	Prompt ; What is the blood supply to the hip joint and how would this be disrupted	Main supply is via retinacular **aa, from branches of circumflex femoral** (esp medial circumflex femoral, because these are able to pass freely under unattached post border of joint capsule. Branches from lat Cx must penetrate thick iliofemoral lig and are smaller and fewer). Retinacular **aa are torn or disrupted in intracapsular #**	

Femur 2013-1

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: Femur (Bony Landmarks)	Identify the important features of this bone	**Head**, fovea, **neck**, **greater / lesser trochanters**, trochanteric fossa, intertrochanteric crest (post) / line (ant), **shaft**, linea aspera, **med + lat femoral condyles**, intercondylar fossa, adductor tubercle, patellar surface	Bold + 2 to pass
	Describe the blood supply to the head of the femur	Via posterior retinacular arteries of **medial circumflex femoral artery**. Lateral circumflex femoral artery contributes a little via cruciate anastomosis. Possibly from foveal artery (branch of obturator artery)	Bold to pass
	What is the clinical significance of this	Intracapsular #s (subcapital, transcervical) may lead to **AVN** of head of femur, especially if displaced	Bold to pass

Femur 2010-2

Question 2 **Bone: Femur**	a) Identify the landmarks of this bone	**Head**, **fovea**, neck **Greater trochanter, lesser trochanter**, Trochanteric fossa intertrochanteric line intertrochanteric crest pectineal line **shaft and/or linea aspera** medial / lateral supracondylar lines adductor tubercle medial / lateral epicondyles **medial / lateral condyles** intercondylar fossa	**Bold** plus 3 others to pass
	b) Demonstrate the attachments of the adductor muscles of the hip.	Adductor longus - Middle 1/3 linea aspera Adductor brevis - Pectineal line and proximal linea aspera Adductor magnus - Adductor part – linea aspera, medial supracondylar line Hamstring part (not strictly in this Q) adductor tubercle [Gracilis] Not femur (tibia)] Pectineus Pectineal line inferior to lesser trochanter Obturator Externus Trochanteric fossa	3 to pass

Femur 2010-1

Question 2:
 	
Bone: Femur
	a. Identify this bone, and identify the significant bony landmarks of its proximal portion
	
	PROMPT: Ask for side if needed
		a. Femur, appropriate side (head superomedially, distal intercondylar fossa posterior)
		Landmarks:
		• **Head**
		  ○ fovea for ligament of the head
		• **Neck**
		• **Lesser Trochanter**
		• **Greater trochanter**
		• Intertrochanteric line (anteriorly)- continues as spiral line
		• **Intertrochanteric crest** (posteriorly)
		  ○ Quadrate tubercle
			a. Need all bold

	b. What is the blood supply of the neck and head of the femur?
	
	PROMPT: Which is the main supply?
		b. Blood supply to neck and head
		  ○ Medial and lateral circumflex femoral aa
		  ○ Usually branches of deep artery of thigh (profunda femoris)
		  ○ Branch to form retinacular aa (from medial>lateral), feed under the posterior unattached capsule (med) or through the iliofemoral ligament (lat)
		• Artery to the head of the femur (less)
		  ○ Branch of obturator a
		  ○ travels in the ligament of the head
			b. Need to demonstrate understanding of dual supply, and relative contributions (circumflex aa>a of head of femur)

	c. How does the capsule of the hip joint attach on this bone? (BONUS)	c. Capsule of hip joint on femur
		• Most fibres spiral around the joint to attach at the intertrochanteric line and root of greater trochanter
		• Posteriorly, fibrous layer crosses the neck proximal to the intertrochanteric crest, but is not attached
		• deep fibres pass circularly around the neck to form orbicular zone
		• The capsule thickens into three ligaments:
		  ○ Iliofemoral- intertrochanteric line
		  ○ Pubofemoral- merges with fibrous capsule
		  ○ Ischiofemoral- into femoral neck, medial to the base of the greater trochanter
			c. Be able to demonstrate understanding of capsular attachment

Femur 2005-1

TOPIC: Femur _____ **NUMBER: 1-3** _____

OPENING QUESTION	Identify the landmarks on the upper end	**COMMENTS**
POINTS REQUIRED	1 Gt Trochanter	6 of 9
	2 Lesser Trochanter	
	3 Intertrochanteric line (ant), crest (post)	
	4 Quadrate Tubercle	
	5 Trochanteric Fossa	
	6 Neck	
	7 Head & Fovea	
PROMPTS	Point and ask smaller ones	
SECOND QUESTION (if needed)	What is the Blood supply to the head?	2 of 3 to pass
POINTS REQUIRED	1 Mainly ascending cervical branches along femoral neck - tight to bone(from extracapsular arterial ring from medial and lateral circumflex femoral artery)	
	2 Secondary from artery of ligamentum teres (from obturator, inadequate on own)	
	3 Intramedullary vessels	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)	What are the attachments of the capsule?	All or none
POINTS REQUIRED	1 Intertrochanteric Line anteriorly	
	2 Halfway along neck posteriorly (because of obturator externus)	
	3	
	4	
PROMPTS		

Posterior thigh 2014-2-C

Stem: Another patient arrives with a stab wound to the back of his right thigh. **We will move now on to anatomy**			
Question 3 Posterior Thigh Muscles photo **Subject:** Anat LOA: 1	Identify the structures in this photo of the posterior thigh.	**Sciatic nerve (19),** gluteus maximus (5), long head biceps (9), semitendinosus (22), semimembranosus (21), ischial tuberosity (8), gracilis (6), iliotibial tract (7), adductor magnus (1), popliteal artery and vein(16,17), quadratus femoris (18)	**Bold + any 4 others** Prompt bold if required.
	What are the clinical features of a severed sciatic nerve in the upper thigh? Prompt: what does the sciatic nerve supply distal to this point.	**Motor**: SN supplies all posterior thigh muscles (depending on level of injury these may be affected), all leg and foot muscles loss of hip extension and knee flexion. All ankle (**Flex/Ext, inversion, eversion**) and **toe movements** lost. **Sensory:** skin of most of leg and foot ->**posterior and lateral leg, sole** of **foot, lateral and dorsum of foot.**	**Motor 3 bold** **Sensory 3 bold**

Posterior thigh 2006-1

TOPIC: photo of the posterior thigh – sciatic nerve_____ **NUMBER:** _____ Th Q4

OPENING QUESTION	This is a photograph of the back of the right thigh. This is the medial aspect. This is the lateral aspect. Could you name the numbered muscular structures?	**COMMENTS**
POINTS REQUIRED	1 Adductor gracilis (2)	Possible
	2 Semitendinosus (3)	Must know
	3 Semimembranosus (4)	Must know
	4 Long head Biceps (5)	Must know
	5 Short head biceps (14)	Must Know
	6 Quadratus femoris (9)	Possible
	7 Ilio-tibial band (13) 8. Gluteus maximus (10) 9. Adductor magnus (19)	Possible Should know Possible 6 of 9 to pass
PROMPTS	Perhaps questions of orientation. Tell me what you can see	
SECOND QUESTION (if needed)	Can you identify the sciatic nerve and the What is the course of the sciatic nerve in the thigh?	
POINTS REQUIRED	1 Appropriate identification of the sciatic nerve	Must know
	2 Enters by passing deep to piriformis, usually.	Could know
	3 Enters the upper thigh deep to the hamstrings	Could know
	4 After biceps overarches the nerve the, nerve lies deeply between semimembranosus and biceps	Should know
	5 Divides into peroneal and tibial nerves about 5 cm above the knee joint	Should know
	6 Giving off muscular branches to hamstrings	Must know
		Identify nerve on image & identify 3 of 5 to pass
PROMPTS		

Proximal femur 2014-2-A

Stem: Another patient arrives with a stab wound to the back of his right thigh. **We will move now on to anatomy**			
Question 3 Posterior Thigh Muscles photo **Subject:** Anat LOA: 1	Identify the structures in this photo of the posterior thigh.	**Sciatic nerve (19),** gluteus maximus (5), long head biceps (9), semitendinosus (22), semimembranosus (21), ischial tuberosity (8), gracilis (6), iliotibial tract (7), adductor magnus (1), popliteal artery and vein(16,17), quadratus femoris (18)	**Bold + any 4 others** Prompt bold if required.
	What are the clinical features of a severed sciatic nerve in the upper thigh? Prompt: what does the sciatic nerve supply distal to this point.	<u>**Motor**</u>: SN supplies all posterior thigh muscles (depending on level of injury these may be affected), all leg and foot muscles loss of hip extension and knee flexion**.** All ankle (**Flex/Ext, inversion, eversion**) and **toe movements** lost. <u>**Sensory**</u>**:** skin of most of leg and foot ->**posterior and lateral leg, sole** of **foot, lateral and dorsum of foot.**	**Motor 3 bold** **Sensory 3 bold**

Quadriceps 2012-1

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? 2. What are their actions? 3. What is their nerve supply?	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 /** 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	*Minimum: Correctly identify all four and name origin of Rectus femoris and insertion of all.*

Knee 2017-1-B

Stem: His knee is swollen. Moving on to Anatomy.			
Question 4 Knee (x-ray) **Subject:** Anatomy	a) Identify the bony structure shown on this x-ray.	**a) Femur –** condyles (medial and lateral), epicondyles (medial and lateral). Adductor tubercle **Tibia –** condyles (medial and lateral), tibial plateau, intercondylar eminence with intercondylar tubercles (medial and lateral) **Fibular –** head with apex, neck **Patella**	All bold plus 6 others
LOA: 1	b) What factors stabilise the knee joint?	b) Strength and actions of surrounding **muscles and their tendons –** most important **quadriceps femoris**, esp. vastus medialis and lateralis. **Ligaments** connecting femur and tibia **–** The main ones being the anterior and posterior **Cruciates and** medial (tibial) and lateral (fibular) **collaterals** Other ligaments are; posterior oblique and arcuate ligaments and the patella ligament (Most stable position = erect extended knee. Articular surfaces most congruent. Cruciates and collaterals taut and joint splinted by many tendons).	Must identify muscle groups and all 4 main ligaments
	c) Describe the attachments of the cruciate ligaments.	c) ACL attaches anteriorly and runs up laterally, PCL opposite.ACL arise from anterior intercondylar tibial eminence, passes superiorly and posterolaterally to medial aspect of thelateral femoral condyle. PCL arise from posterior intercondylar area of tibia, passes superiorly and anteromedially to thelateral aspect of the medial femoral condyle	Must identify A/P tibial attachments.

Knee 2015-1-C

Stem: Moving onto Anatomy. On examination, he has a swollen knee			
Question 3 Knee model **Subject:** Anat LOA: 1	1. Please identify the ligaments of the knee joint and their attachments	**Patellar ligament** – apex of patella to tibial tuberosity **Fibular collateral ligament**- lateral epicondyle of femur to – lateral surface of fibula head **Tibial collateral ligament** – medial epicondyle of femur – lateral and superior aspect of tibia **Anterior cruciate** – anterior intercondylar area of tibia to anterior aspect of the lateral surface of medial condyle of femur **Posterior cruciate** – posterior intercondylar area of the tibia to anterior aspect of the lateral surface of medial condyle of femur Posterior meniscofemoral ligament	Identify attachments of 3/5
	2. Describe the main movements of the knee joint and the muscles involved.	**Extension – quadriceps femoris** **Flexion – semitendinosis, semimembranosus, biceps femoris** Medial rotation – when flexed – ST, SM When non wt bearing knee extended – popliteus	Bold
	3. Describe the locking and unlocking process as the joint is extended and flexed	When knee extended and weight bearing – knee passively locks due to medial rotation of femoral condyles on tibial plateau Knee unlocks through contraction of popliteus rotating femur laterally on the tibial plateau allowing flexion	Understand concept

Knee 2014-1-D

Stem: Moving onto **ANATOMY**			
Question 2 **Subject:** Anatomy LOA: 1	(a) Identify the features on this model of the knee joint.	**Bones: patella, femur, fibula, tibia, and** **Features:** med/lat fem condyles, med/lat tibial condyles, tibial tuberosity, head/neck fibula, lat /med epicondyle femur, menisci, patellar tendon **Ligaments:** medial/lat collateral, ant / post **cruciates**	(a) All bones + 5 features + 4/4 ligaments
	(b) Describe the cruciate ligaments and their actions.	**Attachment points:** • Ant cruciate - weaker, ant intercondylar area tibia, extends sup, post and laterally to attach to post part of med side of lat condyle femur • Post cruciate - arises from post intercondylar area of tib and passes sup and anteriorly on med side of ant cruciate to attach to ant part of lat surface of med condyle of femur) **Actions:** • Ant cruciate prevents post movement of femur on tibia (or ant movement of tib on femur) and limits hyperextension of knee • Post cruciate limits ant movement of femur on tibia (or post movement of tib on femur) and prevent hyperflexion of knee	(b) 2/4 attachment points 1/2 actions
	(c) What features confer stability on the knee joint?	(c) **Muscles/tendons, and ligaments connecting femur to tibia – no bony contribution. 2/3** of **quadriceps** (esp. inf. fibres of vast med/lat) **Collateral ligaments** and **cruciate ligaments**	(c) Bold to pass

Knee 2011-1

Q2. Knee – Model Movements and locking	(a) Identify the ligaments of the knee joint and their attachments that you can see in this model.	1. **Patellar ligament** – apex of patella to tibial tuberosity 2. **Fibular collateral ligament** (FCL or LCL) – lateral epicondyle of femur to lateral surface of fibular head 3. **Tibial collateral ligament** (TCL or MCL) – medial epicondyle of femur to medial condyle and superior aspect of medial surface of tibia 4. **Anterior cruciate ligament** (ACL) – anterior intercondylar area of tibia to posterior part of medial side of lateral condyle of femur 5. **Posterior cruciate ligament** (PCL) – posterior intercondylar area of the tibia to anterior aspect of lateral surface of medical condyle of femur 6. Posterior meniscofemoral ligament	Bold to pass
	(b) Describe the main movements of the knee joint and the muscles that are involved. Prompt: Are there rotational movements of the knee that you can describe?	1. **Extension – quadriceps femoris** (weakly: tensor of fascia lata) 2. **Flexion – semitendinosus, semimembranosus,** long and short heads of **biceps femoris** 3. Medial rotation – When flexed - semitendinosus, semimembranosus. When non-bearing knee extended - popliteus. 4. Lateral rotation – When flexed - biceps femoris	Bold to pass
	(c) Describe the locking and unlocking process that occurs with the weight- bearing knee as we extend and flex the joint whilst walking.	When **knee fully extended** and weight bearing – knee passively locks due to **medial rotation of femoral condyles on tibial plateau.** Knee **unlocks** through contraction of popliteus – **rotating femur laterally on tibial plateau** to allow flexion.	Bold to pass

Knee 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Q1:	**Using this model, indicate the major ligaments of the knee and their attachments** **Prompt:** Extrinsic (5) & Intrinsic	**Patellar**: apex patella to tibial tuberosity . **Fibular collat**: lat femoral condyle to lat. fibula head **Tibial collat**: medial condyle to medial tibia & med. meniscus **Cruciates:** **Ant cruciate:** Ant intercondyle tibia to post part lateral fem condyle **Post cruciate:**Post intercond to anterolat medial condyle femur **Post Menisco-femoral**	Must know med, lat collats and cruciates and patella lig to pass
Q 2:	**What are the actions of these ligaments**	Patella part of ant joint capsule Fib and tibial collat: Taut in extension & relax in flexion to check rotation Cruciates: reduce medial rotation & allow lateral rotation until stopped by medial lig. Ant: prevent post displacement & hyperextension Post: prevent hyperflexion & stabilise knee in flexion	Ant and post cruciate to pass
Q 3:	**What are the attachments of the menisci**	Attached to intercondylar area tibia External parts attached to capsule 2 ligaments: coronary ligs from artic margins femur & tibia except under politeus tendon & transverse lig anteriorly to each other **Medial:** anterior horn to intercondylar are tibia in front of ACL & post horn in front of PCL **Lateral:**both horns attached intercondylar area tibia immediately in fron of & behind intercondylar spine	Predominate attachment is intercondylar ridge

OPENING QUESTION	**Demonstrate the bony features on this x-ray.**	COMMENTS
POINTS REQUIRED	1 Bones – **femur; tibia; fibula**	8 = pass
	2 **Patella** (sesamoid)	
	3 Tibia – **intercondylar eminence (ICE)**; posterior intercondylar area; anterior intercondylar area	
	4 Tibia - **tuberosity**	
	5 Tibia –**condyles** (lateral; medial)	
	6 Femur – **condyles** (lateral; medial)	
	7 Femur – **epicondyles** (lateral; medial)	
	8 Fibula – **head of fibula**	
PROMPTS	Indicate features and ask	
SECOND QUESTION	**Using the x-ray as a guide, describe the cruciate ligaments.**	
POINTS REQUIRED	1 **Cruciates – anterior (ACL)** (anterior part ICE → postero-medial lat femoral condyle) and **posterior (PCL)** (stronger; posterior part ICE → ant-lat med femoral condyle)	Both correct to pass
	2 Ligaments of fibrous capsule: **ligamentum patellae** (continuation of Quadriceps Femoris tendon → tib tuberosity); **fibular collateral (lateral) ligament** (lat epicondyle of femur → head of fib); **tibial collateral (medial) ligament** (med epicondyle of femur → medial surface of tibia); **oblique popliteal ligament** (expansion of tendon of Semimebranosis; strengthens capsule posteriorly); **arcuate popliteal ligament** also strengthens capsule posteriorly; post aspect of head of fib → ICE and post aspect of lat epicondyle of femur)	Extra if doing well
	3 Others: menisci joined anteriorly by **transverse ligament**; medial cruciate joined to PCL by **posterior menisco-femoral ligament**	
THIRD QUESTION (if needed)	What are the factors that contribute to stability of the knee joint?	If doing well and sufficient time
POINTS REQUIRED	1 Strength of **surrounding muscles** (most important): particularly Quadriceps femoris (especially lower fibres of Vastus medialis and Vastus lateralis)	
	2 Strength of **surrounding ligaments**	
	3 **Bony** structures (minor)	

No prompts.
COMMENTS Must pass questions 1 & 2 to pass overall

Knee 2006-2

2. **Model – knee patella stability and quadriceps**	1. What factors are responsible for stability of the patella? 2. Describe the components of the quadriceps.	Primarily muscular, especially direction of pull of VM. Boney – lat femoral condyle. Capsule / ligaments – minimal 4 muscles, origin of rectus femoris if doing well – both heads. Discuss horizontal pull of VM is not already described.		

TOPIC: Knee joint bones _____ **NUMBER: Th PM**

OPENING QUESTION	Identify the bony features of the knee joint	**COMMENTS**
POINTS REQUIRED	1 2 femoral condyles	
	2 2 Epicondyles	
	3 2 condylar surfaces	
	4 1 intercondylar eminences with 2 tibial spines	5 of 7 to pass
PROMPTS		
SECOND QUESTION (if needed)	What are the major ligaments of the knee joints?	
POINTS REQUIRED	1 Anterior cruciate	
	2 Posterior cruciate	
	3 Medical collateral superficial and deep	
	4. Lateral collateral ligament	
	4. Popliteal ligament	
	5. Arcuate ligament	
	6 Ligamentum patellae	2 paired ligaments to pass
PROMPTS		
THIRD QUESTION (if needed)	Demonstrate their attachments on the tibia?	
POINTS REQUIRED	1 Anterior cruciate	
	2 Posterior cruciate	
	3 Medical collateral superficial and deep	
	4 Ligamentum patellae	3 of 4 to pass
PROMPTS		

Knee 2005-2

TOPIC: Discussion: Knee model _____ **NUMBER: 1.5** _____

OPENING QUESTION	**Here is a model of a knee. Could you point out the main ligaments?**	**COMMENTS** * Essential
POINTS REQUIRED	1 Tibial collateral lig (med lig)	*
	2 Fibular collateral lig (lat lig)	*
	3 Anterior cruciate lig	*
	4 Post cruciate lig	*
	5 Patellar	*
	6 Posterior meniscofemoral ligament	
PROMPTS	**What other ligaments help stabilise the knee joint?**	
SECOND QUESTION	**What is the most important stabilising factor of the knee joint?**	
POINTS REQUIRED	Cruciates* **How do they act to stabilise the knee?** Forward displacement of tibia on femur prevented by art cruciate* Backward displacement of tibia on femur prevented by post cruciate.*	* essential
THIRD QUESTION	**Describe the main anatomical features of the cruciate ligaments**	
POINTS REQUIRED	1 Intracapsular but extrasynovial (covered by synovium on front and sides but not posteriorly) Cruciates cross each other like " X " with ant cruciate lying anterolateral to the post cruciate	
	2 *Ant cruciate ;* Anterior part of tibial plateau* between attachments of ant horns of med and lat menisci Ascends posterolaterally twisting on itself Attaches to posteromedial aspect of lat fem condyle*	Essential to demonstrate an understanding of attachments
	3 *Post cruciate*; Stronger shorter and less oblique Smooth impression on post part of tibial intercondylar area (which extends to the uppermost part of post surface of tibia Ascends anteromedially Attaches to anterolateral aspect of med fem condyle	Essential to demonstrate an understanding of attachments

Knee 2004-2

TOPIC: Knee _____ **NUMBER: 3.3** _____

OPENING QUESTION	Identify the muscles responsible for flexion and extension of the knee on this model	**COMMENTS**
POINTS REQUIRED	1 Semimembranosus – flexion	
	2 Semitendinosus – flexion	
	3 Biceps femoris – flexion	
	4 Quadriceps – extension	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	What factors contribute to the stability of the patella?	
POINTS REQUIRED	1 Bony – lateral condyle of femur	
	2 Ligamentous – tension in medial patella retinaculum	
	3 Muscular – vastus medialis	
	4	
	5	
	6	
PROMPTS		

Knee 2004-2

TOPIC: Knee _____ **NUMBER: 2.1** _____

OPENING QUESTION	Identify the bony features of the knee joint shown on this Xray	**COMMENTS**
POINTS REQUIRED	1 Femoral Condyles x 2	4 of 6 to pass
	2 Tibial Condyles x 2	
	3 Intercondylar eminence and tubercles	
	4 Patella	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	What are the features that contribute to stability of this joint?	
POINTS REQUIRED	1 Primarily Ligaments – tib & fib collaterals, ant & post cruciates	3 of 4 ligs and muscles to pass
	2 Muscles – Quads, hamstrings	
	3 Bones minimal contribution, eminence to prevent sideways movement	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)		
POINTS REQUIRED	1	
	2	
	5	
	6	
PROMPTS		

Knee 2003-2

QUESTIONS AND POINTS REQUIRED	On the model demonstrate the movements of the bony components of the knee joint in going from flexion to extension when the foot is on the ground.	1. Lateral condyle completes its extension short of full extension, 2.lateral condyle rotates forwards around taught ACL, 3. medial condyle glides backwards as full extension approaches. 4.Result is 10 deg of hyperextension (First 2 to pass)
	Which muscles flex and extend the knee.	Flex – Hamstrings, Sartorious, Gracilis, Gastrocnemius, Plantaris, Popliteus. (Hams and Pop – unlock and 1 other to pass) Extension – Quads and Tensor Fascia Latae (Quads to pass)

Knee Joint 2016-2-D

Stem: A knee x-ray is performed. Moving onto Anatomy.			
Question 2 Knee joint (normal x-ray) *Use AP and lateral xrays* **Subject:** Anatomy LOA 1	a. Demonstrate the bony features on this xray	**Femur: medial and lateral condyles** and epicondyles. Adductor tubercle. **Tibia: medial and lateral condyles** that form a relatively flat superior articular surface (tibial plateau). **Intercondylar eminence/tibial spine** formed by medial and lateral intercondylar tubercles. Tibial tuberosity. **Fibula: Head of fibula** (contacting fibular articular facet of tibia = Tibiofibular joint) **Patella**	Bold
	b. Describe the anatomy of the Cruciate Ligaments	**Anterior cruciate: arises from anterior intercondylar area of tibia** just posterior to attachment of medial meniscus. Extends superiorly, posteriorly and laterally to attach to posterior part of medial side of **lateral femoral condyle** (weaker of 2 cruciates and has poor blood supply) **Posterior cruciate: arises from posterior intercondylar area of tibia**. Passes superiorly and anteriorly on medial side of ACL. Attaches to anterior part of lateral surface of **medial femoral condyle** (strongest of 2 cruciates)	Bold
	c. What are the factors that contribute to stability of the Knee Joint?	Relatively mechanically weak joint due to incongruence of its articular surfaces **Large quadriceps femoris muscle** (particularly inferior fibres of vastus medialis and lateralis) **most important** Tibial (medial) and Fibular (lateral) Collateral Ligaments Anterior and Posterior Cruciate Ligaments	Bold

Knee Ligaments 2017-2-C

Stem: Moving on to Anatomy			
Question 4 Model knee ligaments **Subject:** Anatomy Moore 7th Pp 636-642 LOA: 1	Identify the ligaments and tendons of the knee on this model	Ligaments: **Med (tibial) collateral, Lat. (fibular) collateral, Ant cruciate, Post cruciate**, posterior meniscofemoral, lat meniscofemoral (not on model) Tendons: Quadriceps, patellar	**4 bolded** + one correctly named tendon to pass
	What are the functions of the cruciate ligaments	ACL: Prevents posterior displacement of femur on tibia. Prevents hyperextension of the knee. Limits posterior rolling of the femoral condyles on tibial plateau in flexion	**1 of 3**
		PCL: Limits anterior rolling of the femur on the tibial plateau in extension. Prevents anterior displacement of the femur on tibia. Helps prevent hyperflexion of the knee.	**1 of 3**
	Describe the medial meniscus and its attachments	Crescentic. Fibrocartilage. Thickens towards joint margins. Ant horn attached to anterior intercondylar area of tibia anterior to ACL. Post horn attached to post intercondylar area of tibia anterior to PCL. Firmly attached to TCL (deep MCL or MCL) Less mobile than the lat meniscus	**3 of 7** must include 1 attachment

Knee XR 2012-2

Question 2 **XRAY** Knee, extra capsular and intra-articular ligs LOA: 1	Indentify bony structures are shown on this x-ray?	**Femur** – condyles (medial & lateral), epicondyles (medial & lateral), Adductor tubercle **Tibia** – condyles (medial & lateral), tibial plateau, intercondylar eminence with intercondylar tubercles (medial & lateral) **Fibular** – head with apex, neck **Patella**	All bold plus 6 others
	What factors stabilise the knee joint	1. Strength & actions of surrounding **muscles and their tendons** – most impt **quadriceps femoris**, esp inferior vastus medialis & lateralis 2. **Ligaments** connecting femur & tibia - **Cruciates & collaterals** (Most stable position = erect extended knee – articular surfaces most congruent, Cruciates and collaterals taut and jt splinted by many tendons)	Must ID muscle groups and all 4 main ligs
	Describe the attachments of the cruciate ligs	ACL attaches ant and runs up & laterally, PCL opposite	Must identify A/P tib attachments

Knee XR 2006-1

TOPIC: Knee photo (or x-ray) - landmarks & capsular attachments **NUMBER: Fri Q4** 1

OPENING QUESTION	Indicate the bony features on this x-ray	**COMMENTS**
POINTS REQUIRED	1 Femoral shaft	
	2 Femoral condyles	
	3 Tibial plateau	
	4 Intercondylar eminence	
	5 Patella	
	6. Fibula head	
	7 Fibula neck	
	8. Fibula shaft	6 of 8 to pass
SECOND QUESTION (if needed)	Describe the capsular attachments of the knee	**COMMENTS**
POINTS REQUIRED	1 attached to the margins of the articular surfaces	
	2 Femoral - posteriorly to prox margin of the condyles	
	3 anteriorly – deficit allowing for suprapatellar bursa - blends with patella retinacula and ligament	
	4 laterally - passage of popliteus tendon	
	5 - attach to head of fibula	
	6 medially –deep component of med collat lig. + Meniscus	
	7 weak attachment to both menisci	4/7 to pass
PROMPTS		
THIRD QUESTION (if needed)	Which structures add stability to the joint	
POINTS REQUIRED		
PROMPTS		

Knee XR 2003-1

TOPIC: Knee photo (or x-ray) - landmarks & capsular attachments **NUMBER: Fri Q4** 1

OPENING QUESTION	Indicate the bony features on this x-ray	**COMMENTS**
POINTS REQUIRED	1 Femoral shaft	
	2 Femoral condyles	
	3 Tibial plateau	
	4 Intercondylar eminence	
	5 Patella	
	6. Fibula head	
	7 Fibula neck	
	8. Fibula shaft	6 of 8 to pass
SECOND QUESTION (if needed)	Describe the capsular attachments of the knee	**COMMENTS**
POINTS REQUIRED	1 attached to the margins of the articular surfaces	
	2 Femoral - posteriorly to prox margin of the condyles	
	3 anteriorly – deficit allowing for suprapatellar bursa - blends with patella retinacula and ligament	
	4 laterally - passage of popliteus tendon	
	5 - attach to head of fibula	
	6 medially –deep component of med collat lig. + Meniscus	
	7 weak attachment to both menisci	4/7 to pass
PROMPTS		
THIRD QUESTION (if needed)	Which structures add stability to the joint	
POINTS REQUIRED		
PROMPTS		

Popliteal fossa 2016-1-D

Stem: Moving onto Anatomy			
Question 2 Lower leg – popliteal fossa – vascular supply (Photo) **Subject:** Anat LOA: 1	Identify the superficial boundaries and the contents of the popliteal fossa How does the popliteal artery supply the leg and foot? PROMPTS: What are the main branches of the popliteal artery? Prompt: What pulses can you palpate below the knee?	Superiorly: biceps femoris (1), semitendinosus (12) and semimembranosus (11). Inferiorly : lat (3) and med (4) heads of gastrocnemius Contents: Popliteal Art (8) & V (10), Small saphenous V (13) ; Tibial n. (15), common fibular n. (2) & sural n. (14); Divides into **Post and Ant tibial arteries** at lower border of popliteus. Post Tib runs in **post compartment then palpable post to med malleolus** and divides into med and lat plantar arteries to sole of foot. Main branch is fibular art to post and lat compartments **Ant Tib runs ant compartment then crosses anteriorly over ankle to become dorsalis pedis**	To pass – biceps, one of the semis, both heads of gastrocnemius; Common fibular & tibial nerve, popliteal artery and vein **Bold to pass**

Popliteal fossa 2008-2

Question 5:	Describe the superficial boundaries of the popliteal fossa Using this photo demonstrate the contents? What is the distribution and supply of the common fibular nerve/	Superiorly: biceps femoris 1, semitendinosus 14 and semimembranosus 13 Inferiorly : lat 5 and med 6 heads of gastrocnemius Popliteal vessels 10&11 Small saphenous vein 15 Tibial 19 & common fibular 2 nerves Lymph nodes and lymphatics Superficial fibular nerve lateral compartment Antero lat leg and foot Deep fibular nerve ant comp and dorsum foot Skin b/w great &2nd toe	To pass – biceps, one of the semis, both heads of gastrocnemius To pass – Common fibular nerve, Tibial nerve, Popliteal artery and vein To pass – weakness of dorsiflexion and inversion

Anterior compartment of leg 2011-2

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**

Common fibular nerve 2010-1

Question 5: Discussion: Common fibularis (common fibular n/common peroneal n)	a. Outline the course of the common fibular nerve and its main branches. b. What does it supply? (Motor and sensory)	Origin: from **sciatic n** as it bifurcates in **apex pop fossa** Passes over **post head of fib** and then winds around neck of fib Divides into **sup and deep fib n,** also br to knee jt. Common- supplies **skin posterolat leg** Superficial br –**motor supply to lateral compartment**, and sensory supply **distal 1/3 ant leg and foot** Deep branch motor to **ant mm of leg and dorsum of foot**, and Sensory to **1st web space foot.**	For a pass: Origin, Fib head, Main branches, Motor and sens supply

Fibularis Muscles 2011-2

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**

Fibularis Muscles 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1:	a. Identify and describe the fibularis muscles	**Fibularis (Peroneus) Longus (lat comp) (18)** Head and upper shaft of fibula - passes deep to sup fibular retinaculum, post to lat malleolus then through separate compartment deep to inferior fibular retinaculum. Then passes inf to the fibular trochlea of the calcaneus, through groove on ant inf aspect of cuboid – crosses sole of the foot to insert on the base of the 1st MT and medial cuneiform **Fibularis (Peroneus) Brevis (lat comp) (17)** Distal shaft of fibula deep to PT. Post to lat malleolus deep to FL tendon. Passes sup to fibular trochlea of calcaneum. Inserts on base of 5th MT Fibularus (Peroneus) Tertius (ant compartment) (14) Slip of muscle from EDL Passes ant to lat malleolus inserts on base of 5th MT	'reasonable' description of FL and FB to pass
	b. What nerves supply these muscles	**Nerve supply** **FL and FB supplied by superficial Fibular (peroneal) nerve** FT supplied by Deep Fibular (Peroneal) nerve	Bold to pass
Question 2:	What are the actions of the fibular muscles	**Evertors of foot** **Stabilise foot** in 'toe-off' phase of walking / running **FL &FB – weak plantar flexors** because they run post to t/v axis of ankle joint FL – contributes dynamic stability tot the transverse arch of the foot FT – weak dorsiflexor	2/3 Bold to pass
Question 3:	What joins are involved in inversion and eversion of the foot	• **Subtalar (talocalcaneal) joint** • Transverse tarsal joint (**calcaneocuboid** and **talonvavicular joint**)	2/3 to pass

Lateral Compartment of Leg 2012-1

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

Long saphenous vein 2004-2

TOPIC: Ankle _____ **NUMBER: 1.4**

OPENING QUESTION	Commencing with its origin in the foot, describe the course and relations of the long saphenous vein	**COMMENTS**
POINTS REQUIRED	1 commences at medial side of dorsal venous arch	Require course
	2 course upward in front of medial malleolus	
	3 crosses to behind medial border of tibia and pass behind knee (1 handsbreath behind medial border patella)	
	4 spirals forward across medial aspect thigh to pass through cribriform fascia and join femoral vein	
	5 perforating veins connect LSV and deep system - below med malleolus, 10cm above med malleolus mid calf knee mid thigh	
	6 LSV accompanied by saphenous nerve	Accompanying nerve
	7 valves along course (optional)	
PROMPTS		
SECOND QUESTION (if needed)	What functional deficit results from a tibial nerve injury at the knee and explain why	
POINTS REQUIRED	1 Unable to stand on tiptoes (calf flexors lost) – soleus, TP, FDL, FHL	
	2 Sensory loss – Medial Calcaneal, medial and lateral plantar nerves – loss of sensation over leg and sole of foot	
	3 intrinsic muscles of foot lost – medial & lateral plantar nerves	

Lower limb compartments 2016-1-B

Stem: Moving onto Anatomy. His pain seems out of proportion to the injury. A compartment syndrome is suspected.			
Question 3 Lower Limb compartments (model) LOA: 1	*a. Identify the muscles of the posterior compartment of the leg, using this model.*	**Superficial** – gastrocnemius (medial and lateral heads), soleus, plantaris. **Deep**- Popliteus, FHL, FDL, Tibialis posterior.	2 superficial + 2 deep.
	b. What is the nerve supply of these muscles?	Tibial branch of sciatic nerve. Aka **tibial nerve**, or posterior tibial nerve.	Must name nerve.
	c. Using the model, describe the course of this nerve in the leg.	**Formed at apex of popliteal fossa by bifurcation of sciatic nerve** (other branch is common peroneal, or common fibular nerve). Runs vertically in popliteal fossa with popliteal artery, passing between heads of gastroc and deep to tendinous arch of soleus. Runs inferiorly on tib posterior with post tib vessels. **Divides into medial and lateral planter nerves under flexor retinaculum.**	Bold to pass.

Muscles of leg 2006-2

1. Bone – foot Tendon insertions of mm. post & lat compartments lower leg	1. Pls demonstrate the insertions of the muscles of the post. compartment of the leg	1.Sup. - gastrocs, soleus – tendo calcaneus – to middle 1/3 of post surface calcaneus (2. Sup – plantaris – calc med to tendo calcaneus) 3. Deep – FDL – sup. to FHL & TP, crosses sole obliquely, inserts by 4 slips into bases distal phalanges 4. Deep – FHL – thru flex retinac, grooves post process talus & inf surface sustenaculum tali, to base of distal phalanx gt toe 5. Deep – TP – tendon grooves back of med mall, passes above med side susten tali, inserts into tuber. of navicul.		
	2. Pls demonstrate the insertions of the mm of the lat. compartment of the leg	1. Peroneus longus – behind lat mall (behind peron br), below peroneal trochlea (lat surface calc), lies against post. ridge of cuboid, inserts into base 1st metatarsal & med cuneiform 2. Peroneus brevis – behind lat mall (in front of per long), above peroneal trochlea, ins base 5th metatarsal		

Muscles of plantarflexion 2003-1

TOPIC: Ankle_____**NUMBER: 4AM** _____

OPENING QUESTION	USING THIS MODEL, CAN YOU IDENTIFY THE MUSCLES INVOLVED IN PLANTAR FLEXION AT THE ANKLE?	**COMMENTS**
POINTS REQUIRED	SUPERFIC: GASTROCNEMIUS SOLEUS PLANTARIS DEEP: FL DIGITORUM LONGUS FL HALLUCIS LONGUS TIBIALISPOSTERIOR (PERONEUS LONGUS/BREVIS)	3/7
	2	
	3	
	4	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	WHAT IS THE NERVE SUPPLY THESE MUSCLES?	
POINTS REQUIRED	POSTERIOR TIBIAL NERVE	

Posterior compartment of leg 2015-2-D

Stem: A 25 year old man has ruptured his Achilles tendon. Starting with Anatomy.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Model – lower leg **Subject:** Anat LOA: 1	Identify the muscles of the posterior compartment of the leg	Superficial posterior compartment: **24a,b Gastrocnemius m.** **24c Soleus m.** **24 Plantaris m.** Deep posterior compartment: **26. Popliteus m.** **27 Flexor digitorum longus m.** **28 Tibialis posterior m** **29 Flexor hallucis longus m**	24 a,b,c triceps surae muscle 51 popliteal a. 56 posterior tibial a **Must get 6/8 bold**
	Which muscles form the Achilles tendon	**gastrocnemius and soleus**, +/- plantaris	**Bold** to pass
	Where does the Achilles tendon insert?	supero-posterior aspect of the **calcaneus**	**Bold** to pass
	Can you identify the nerve supply of these muscles?	**tibial n.**	
	Can you identify the structures posterior to the medial malleolus?	Anterior to posterior: Tibialis posterior Flexor Digitorum Longus Posterior Tibial Artery Tibial Nerve Flexor Hall Longus	2/3 muscles and neurovasc bundle to pass
	Supp: What is the blood supply of these mm.?	gastrocnemius - sural a. (branch of popliteal a.); soleus - posterior tibial a. and peroneal a.)	

Posterior compartment of leg 2012-2

Question 4 **Model** Posterior compartment of leg LOA: 1	Identify the muscles of the posterior compartment of the leg? What is the nerve supply of these muscles? Using the model describe the course of this nerve in the leg?	Superfical – gastroc, soleus ,plantaris Deep: Popliteus, FHL , FDL , Tibialis post b) Tibial branch of **sciatic nerve** c) Formed at apex of popliteal fossa by **bifurcation of sciatic** Runs **vertically in pop fossa** with pop artery, passing between heads of gastroc and deep to tendinous arch of soleus Runs inferiorly on tib posterior with post tib vessels Divides into medial and lateral plantar nerves under flexor retinaculum	1 superficial, 3 deep Must name nerve Comes from sciatica and terminates as plantar nn

Posterior compartment of leg 2012-1

Question 4 **Model** Posterior compartment of leg LOA: 1	Identify the muscles of the posterior compartment of the leg? What is the nerve supply of these muscles? Using the model describe the course of this nerve in the leg?	Superfical – gastroc, soleus ,plantaris Deep: Popliteus, FHL , FDL , Tibialis post b) Tibial branch of **sciatic nerve** c) Formed at apex of popliteal fossa by **bifurcation of sciatic** Runs **vertically in pop fossa** with pop artery, passing between heads of gastroc and deep to tendinous arch of soleus Runs inferiorly on tib posterior with post tib vessels Divides into medial and lateral plantar nerves under flexor retinaculum	1 superficial, 3 deep Must name nerve Comes from sciatica and terminates as plantar nn

Posterior compartment of leg 2011-2

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
	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**

TOPIC Discussion:Post. Compartment leg, Achilles attachments NUMBER: 3.5 _

OPENING QUESTION	**List the muscles in the posterior compartment of the leg/calf**	**COMMENTS** * Essential
POINTS REQUIRED	Superficial group Gastrocnemius (lateral and medial heads) Plantaris Soleus Deep group Flexor digitorum longus Flexor hallucis longus Tibialis posterior	* 2 from each group
SECOND QUESTION (if needed)	**Describe the origin and attachments of gastrocnemius and soleus**	
POINTS REQUIRED	Gastrocnemius - Lat head from lat surface of lat fem condyle* (from smooth pit above that of popliteus). - Med head from back of med condyle* and popliteal surface of femoral shaft Broad bellies of mm insert into dense aponeurosis on their ant surfaces, bearing on soleus mm This aponeurosis blends with that of soleus to form tendo calcaneus Tendo calcaneus inserts into smooth transverse area on middle third of post surface of calcaneus*. Soleus Upper quarter of back of fibula including head, fibrous arch* (over pop vessels and tibial nn) in continuity to soleal line of tibia and middle third of post border of tibia. Post. (superficial) lamella is continued at its lower end into tendo calcaneus. The mm fibres of soleus are received into deep surface of tendo calcaneus* down to within a short distance of calcaneus.	*essential Broad upper attachment with fibrous arch AND insertion into tendo calcaneus essential
THIRD QUESTION	**What is the nerve supply to this group of muscles ?**	
	Tibial nerve* (S 1,2)	*essential
BONUS QUESTION	**Describe the course and branches of the tibial nerve in the leg**	
	Tibial nn is the continuation of the sciatic nn (after it divides into tibial and common peroneal) Runs vertically down middle of pop fossa Passes deeply between heads of gastrocnemius Runs with pop vessels beneath fibrous arch of origin of soleus. Enters calf below this fibrous arch Gives motor branches to all mm that arise in pop fossa Plantaris Both heads of gastroc Soleus Popliteus Branch to popliteus hooks around lower border of popliteus to enter its deep (tibial) surface. Has only 1 cutaneous branch ;sural nn Runs vertically down between 2 heads of gastroc Pierces deep fascia halfway down calf (replaces post cutaneous nn of thigh) In superficial fat it joins sural communicating nn and lies close to small saphenous vv. Nerve is lateral to vein 3 articular branches ; genicular nerves which accompany sup,inf and medial genicular aa. Tibial n runs straight down middle of calf, deep to soleus	

Sensory innervation leg and foot 2003-2

TOPIC 5		COMMENTS
QUESTIONS AND POINTS REQUIRED	Demonstrate / describe the sensory innervation of the foot.	Saphenous – medial dorsum to base of big toe, Superficial peroneal – dorsum, Deep peroneal – 1st web space, sural – lateral, Medial and lateral plantar nerves on the sole, Medial calcaneal – heel. 5/7 to pass.
	Demonstrate the dermatomes below the knee.	4,5, S1, S2 First 3 correct to pass

Tibia 2016-2-A

Stem: A 30-year-old woman is brought to the ED with severe dyspnoea. An intraosseous needle has been inserted by the paramedics. We will start with Anatomy			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Bones - Tibia **Subject:** Anatomy LOA: 1	Identify this bone and its main features.	L or R **tibia.** **Medial and lateral condyles.** Medial and lateral tibial plateaus, separated by intercondylar tubercles of the intercondylar eminence. **Tibial tuberosity, shaft**, medial border, anterior border, interosseous border, soleal line (post), **medial malleolus,** fibula notch.	Bold to pass
	Please identify the attachments of the proximal end of this bone. Prompt "What attaches to the superior surface of the bone"	Ant and post horns of the medial meniscus. Ant and post horns of the lateral meniscus. **Ant + post cruciate ligaments**. **Patellar ligament**. Semimembranosus & Vastus medialis (med). Iliotibial tract, ED longus + peroneus longus (lat).	Bold to pass

Tibia 2013-1

TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1: Bone Tibia (Bony Landmarks)	Identify this bone and its main features	**Side bone, identify anterior and interosseus borders** Tibial tuberosity, shaft, medial malleolus, tubercles of intercondylar eminence, medial and lateral condyles, facet for fibula, soleal line,	Bold plus 6 features
	Describe the articulations between this bone and the fibula	**Tibiofibular joint** (superiorly) and **tibiofibular syndesmosis** (inferiorly) TF joint- synovial joint b/w facet fibular head and on posterolaterally on lateral tibial condyle. Joint capsule strengthened by ant and posterior ligaments of the fibular head TF syndesmosis-compound fibrous joint, it is the fibrous union of tib & fib by the IOM and the ant and post tibiofibular ligaments	Both joints identified and 1 classified to pass

Tibia 2008-2

Question 3: Bone: Tibia	Describe the features of the proximal end of this bone Prompt "Demonstrate the attachments of the menisci and cruciate ligaments."	Meniscal attachments Anterior and posterior cruciate attachments Capsular margin Tibial tuberosity Median and lateral condyles Tibiofibular joint	At least 4 bony features to pass

Tibio-fibular joint 2008-2

Question 2: (Day 1 pm session) Bone : Tibia and Fibula	1. Describe the proximal Tibiofibular joint (Tibia and fibula put together for candidates) 2. What structures can be damaged by direct trauma to the region of the proximal fibula? 3. Describe the consequences of injury to the Common peroneal nerve?	1. Identify proximal fibula and articular area of fibula and tibia Synovial joint, separate to knee joint, minimal movement possible 2 & 3 **Lateral collateral ligament** **Biceps femoris tendon** **Common peroneal nerve** Superficial fibular nerve – weakness of ankle eversion (and slight reduction in plantar flexion), sensory loss over lateral aspect of leg , reduced sensation over posterior aspect of leg and lateral aspect of foot ((Lateral) Sural nerve) Deep Fibular nerve (Anterior tibial) – weakness of ankle dorsiflexion (T.Anterior), sensory loss dorsum of foot and first interdigital cleft Injury to fibularis (peroneus) longus and brevis muscles– weakness of ankle eversion.	Pass 1 – Correctly identify joint surfaces, note that separate to knee joint and that no movement possible 2 To pass Common peroneal Nv and one other 3 Loss of dorsiflexion and eversion to pass

Ankle 2016-2-C

Stem: Moving onto Anatomy			
Question 5 Foot and Ankle Model **Subject:** Anat LOA: 1	1) What bones can you identify in this model.	**Fibula + Tibia** **Talus** **Calcaneus** **Cuboid** **Navicular** **Cuneiforms** – medial, intermediate, lateral First to fifth **metatarsals, phalanges**.	Bold to pass
	2) What structures make up the ankle joint?	Distal ends of the **tibia** & **fibula**, the **talus** + inf transverse part of post tibiofib lig.	Bold to pass
	3)What movements occur through this joint?	**Plantarflexion** (ext)+ **Dorsiflexion** (flex) of the foot.	Bold to pass
	4)In what position of the foot is the ankle joint most unstable and why?	**Plantarflexion** as then the trochlea (sup surface of the talus) which is narrower post, lies relatively loosely within the mortise between the malleoli.	Bold to pass
	Extra Q if time: Demonstrate the joints through which eversion / inversion of the foot occur.	Subtalar **(Talocalcanean)** joint, and **Transverse** (or mid) **tarsal joint** – consisting of the Calcaneocuboid + talonavicular joints.	

Ankle 2014-1-C

Stem: He sustained an open ankle injury.			
Question 3 Bones- ankle / foot **Subject:** Anat LOA: **1**	1. Identify the bones of the foot and ankle	1. **Lat malleolus** (fibula), **Medial malleolus** (tibia), **talus** (dome/head/body),**calcaneus, cuboid, navicular,** med/middle/lat **cuneiforms, MTs** (base shaft/head/neck), **tarsal bones**	**1.Bold to pass**
	2. Identify factors that provide stability to the ankle joint (Prompt: Describe the ligament of the ankle in more detail.)	2. **Bony**- Ankle mortice around talus (lat/ med malleolus and distal tibial articular surface) held together by ant + posterior tibio-fibular ligament **Ligamentous**- **MCL** (Deltoid)- 4 parts ant + post tibio-talar, tibio-calcaneal, tibio-navicular) / **LCL**- 3 parts (ATFL, PTFL, calcaneo-fibular ligt) / distal tibio-fibular syndesmosis/ IOM **Muscular**- not seen....	2/3 bold to pass, some details of one of the ligament.

Ankle 2008-1

OPENING QUESTION	Identify the bones of the **tarsus**	COMMENTS
POINTS REQUIRED	1 Talus (head, neck, dome, groove for FHL post, groove for tibialis posterior on plantar surface, articular surfaces for calcaneum, navicular + ankle mortise)	6 out of 7 correct to pass
	2 Calcaneum (shelf= sustentaculum, groove for FHL, site of insertion of tendo achilles, insertion of long plantar ligament on plantar surface, articular surfaces for talus + cuboid)	(Extra marks for detail)
	3 Cuboid	
	4 Navicular	
	5 Medial, middle + lateral cuneiforms	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	Demonstrate the attachments of the medial collateral ligament (= ' deltoid ligament')	2 of the 4 parts to pass
POINTS REQUIRED	1 Posterior tibio-talar (to medial tubercle of talus)	
	2 Tibio-calcaneal (to calcaneal shelf =sustentaculum tali)	
	3 Tibio-navicular (to tuberosity of navicular)	
	4 Anterior tibio-talar	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)	Describe the structures running immediately posterior to the medial malleolus	2 to pass - correct order from superficial to deep needed
POINTS REQUIRED	1 Tibialis posterior tendon	
	2 Posterior tibial artery	
	3 Posterior tibial nerve (lying deep to the artery)	
	4	
	5	

Ankle 2007-1

OPENING QUESTION	What bones can you identify in this ankle and foot?	COMMENTS
POINTS REQUIRED	1) Distal Tibia	
	2) Distal Fibula	
	3) Calcaneous	
	4) Talus	
	5) Metatarsals 1st and 5th	
PROMPTS		
SECOND QUESTION (if needed)	What are the neurovascular relations of the medial malleolus?	3 / 4 to pass
POINTS REQUIRED	1) Post tibial artery post	
	2) Tibial nerve post	
	3) Venae commitantes of the artery post	
	4) Great saphenous nerve and vein anterior	
	5	
	6	
PROMPTS	What nerves and vessels run close to the medial mall?	
THIRD QUESTION (if needed)	How much of the skin of the foot is blocked if you do a post tibial block behind the med. Mall.	
POINTS REQUIRED	1) Medial plantar nerve..medial side of foot	
	2) lateral plantar…lateral side of foot	
	3)doesn't block the lateral side of heel, foot..sural	
	4	
	5	
	6	
PROMPTS		

Ankle bones 2012-1

Question 2 Bone: Ankle joint LOA: 1	(a) Demonstrate the bony features of the ankle joint	• Articular surface of **distal tibia** including **medial malleolus.** • **Lateral malleolus** of distal fibula. • Articular surface of **talus**	All bold
	(b) Demonstrate the ligaments that stabilise the ankle joint (name and describe / show attachments)	• **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 3 bolded for lat, and medial (at least two attachments)

Ankle bones 2010-2

Question 3 **Model: Ankle**	a) Identify the ankle dorsiflexors on this model?	1) tibialis anterior 2) Extensor digitorum longus 3) extensor hallucis longus 4) fibularis (peroneus) tertius	**3/4 to pass**
	b) What is their nerve supply? c) Identify the insertions?	All supplied by deep fibular (peroneal) nerve (L4) 1) TA medial cuneiform and base 1st MT 2) EDL middle and distal phalanges lateral 4 digits 3) EHL base distal phalanx hallux 4) FT 5th MT	**know nerve and 3/4 to pass**

Ankle bones 2009-2

Question 2: Bone: Ankle/foot	Identify the bones of the ankle and foot.	ID: lat/med malleoli, talus, calcaneus, navic, cub, cuneiforms, metat, phalanges (8 of 9)	8 of 9
	What are the parts of the talus	Trochlear (dome), head and neck	2 of 3
	Demonstrate the attachments of the lateral ligament of the ankle	PTFL, ATFL, CFL	ATF lig and 1 other to pass
Question 3:			

Ankle dorsiflexors 2010-2

Question 2: **Bone: Ankle Joint**	a) identify the bony landmarks of the ankle ▪ prompt if not provided – what are the features of this bone (point at talus or name if already named)	▪ lat malleolus ▪ medial malleolus ▪ talus ▪ trochlea talus ▪ head talus ▪ neck talus ▪ body talus ▪ lateral tubercle talus ▪ medial tubercle talus ▪ groove for flexor hallucis longus	**5/10 to pass**
	b) Name the structures passing behind the medial malleolus	▪ Tibialis posterior ▪ Flexor digitorum longus ▪ Posterior tibial artery ▪ Tibial nerve ▪ Flexor hallucis	**3/5 to pass**

Ankle ligaments 2011-1

TOPIC	QUESTIONS	KNOWLEDGE (essential in bold)	NOTES
Q1. X-ray: Ankle	Please demonstrate the ligamentous attachments of the ankle joint What is the most common injury of the ankle joint?	**Three lateral ligaments**1.Anterior talofibular: Flat weak. 2. Posterior talofibular: strong band that runs medially. 3. Calcaneofibular: round cord that passes post/inf from the tip of fibula. Medial: **Deltoid ligament**: attaches to Medial Malleolus and fans out to talus (ant + post), calcaneus and navicular **Sprain, lateral ligament** (anterior talofibular)	Name or describe 3/4

Ankle ligaments 2006-1

1. Bone – foot. Ligg of ankle- attachments, stability	1. Pls demonstrate the attachments of the ligaments of the ankle	1. Med – deltoid – a) deep – med. mall. to side of talus below art. surface b) superficial – triang –from borders of med mall to wide attachment from med tubercle talus along susten tali, spring lig, to tuberosity of navicular 2. Lat – 3 bands a) ant. talofib – ant border lat mall to neck of talus b) calcaneofib – front of tip of lat mall down & back to lat surface calc c) post talofib – horizontal, from malleolar fossa to lat tubercle of talus, strong	Reasonable understanding and demonstration required **Prompt:** What are the main ligg of the ankle?	
	2. What factors contribute the stability of the ankle?	Bone – med & lat malleoli Ligg – med, lat - ant & post tibiofibular		

Ankle XR 2012-2

Question 2 **Xray** Ankle LOA: 1	1. Identify the bony features on this xray	**Fibula/lateral malleolus** **Tibia/medial malleolus** **Talus** head, neck, body **Navicular, Calcaneus,** metatarsals	Bold to pass
	2. Please describe the ligamentous attachments of the ankle joint	**3 lateral ligaments** – anterior talofibular (weak) - post talofibular (runs med, strong) - calcaneofibular (round cord, passes post/inf from tip of fibula)	Bold plus 2 out of 3 lateral ligaments named
		1 Medial ligament – deltoid ligament – medial malleolar attachment fans out to ant/post talus, calcaneus and navicular	Bold to pass

Ankle XR 2009-2

Question 1: X-ray: Lateral Ankle	Please identify the bones on this xray. What movements occur at **the ankle** joint?	Tibia, fibula, calcaneus, talus, navicular, cuboid Metatarsal and cuneiforms (grouped) Lateral and medial malleoli Dorsi and plantar flexion – some laxity in plantar flexion (not inversion/eversion)	These 6 to pass

Ankle XR 2006-1

TOPIC: Ankle x-ray – stability and ligaments _____ **NUMBER:** ___**Th AM** # 1

OPENING QUESTION	**Identify the bones on this x-ray**	**COMMENTS**
POINTS REQUIRED	1 fibular/lateral malleolus	6 of 8 to pass
	2 tibia/medial malleolus	
	3 talus – head, neck, dome	
	4 calcaneus	
	5 navicular	
	6 cuneiforms	
	7 proximal 2/3s of the metatarsals 8 cuboid	
PROMPTS	Can you identify any specific parts of that bone	
SECOND QUESTION (if needed)	**What factors contribute to stability of the ankle joint**	3/3 ligs named to pass
POINTS REQUIRED	1 Bones – talus sandwiched between tib and fib	
	2 Muscles – all muscles that cross the jt	
	3 Ligaments – main factor: medial (deltoid), lateral (3 parts), and post tibiofibular	
	4	
PROMPTS		
THIRD QUESTION (if needed)	**Demonstrate the attachments of the lateral ligament on the x-ray**	2/3 to pass
POINTS REQUIRED	1 ant talofib- ant border of lat mal to neck of talus	
	2 calcaneofibular – tip of lat mal down and back to lat surface of calc	
	3 post talofib – post aspect of lat mal horizontally to lat tubercle of talus	
	4	
PROMPTS		

Ankle XR 2005-1

TOPIC: Ankle X-Ray _____ **NUMBER: 3-1** _____

OPENING QUESTION	Identify the major bony features visible on this xray.	**COMMENTS**
POINTS REQUIRED	1 Tibia / Posterior malleolus / medial malleolus	5 to pass
	2 Fibula / lateral malleolus	
	3 dome of talus	
	4 calcaneum	
	5 navicular	
	6 cuboid	
	7 base of Vth MT + metatarsals	
PROMPTS		
SECOND QUESTION (if needed)	Describe the ligaments that stabilise the ankle joint	Lat, Med, 3 of 4 Lat
POINTS REQUIRED	1 Medial: (Deltoid ligament) -superficial	
	2 -Deep(spring)	
	3 Lat: Anterior talofibular	
	4 Lat: Posterior talofibular	
	5 Lat: calcaneofibular	
	6 Lat: post Tibiofibular	
PROMPTS		

Ankle XR 2003-2

TOPIC 1	Ankle joint Xray	COMMENTS (Required to pass)
QUESTIONS AND POINTS REQUIRED	Demonstrate the bony features of the ankle joint:	3 bones and malleoli
	Demonstrate the capsular attachments (AP view):	Articular margins extending over neck of talus
	Demonstrate the ligamentous attachments (lateral):	Deltoid with superficial and deep parts, Lateral with 3 parts, Posterior tibiofibular

Flexor retinaculum of ankle 2007-2

TOPIC: Ankle _____ **NUMBER: 3** _____

OPENING QUESTION (if needed)	Demonstrate the structures passing behind the medial malleolus	**3 / 5 to pass**
POINTS REQUIRED	1) TP 2) FDL	
	3) Posterior tibial artery	
	4) Tibial nerve	
	5) Flexor hallucis	
	5	
	6	
PROMPTS		
SECOND QUESTION	What is the cutaneous innervation of the tibial nerve?	
POINTS REQUIRED	1) Medial plantar nerve…medial sole of foot	**½ to pass**
	2) lateral plantar…lateral sole of foot	
	3) also calcaneal branches	
	4	
	5	
	6	
PROMPTS		

Foot 2017-1-A

Stem: A 70-year-old diabetic man is being treated for sepsis from an ulcer on his foot. We will start with Anatomy.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Foot (bone) **Subject** Anat LOA: 1	a) Identify the bones of the foot b) Demonstrate the attachments of the medial collateral ligament (deltoid ligament) c) Describe the structures running immediately posterior to the medial malleolus	a) Talus, Calcaneus, Cuboid, Navicular, Cuneiforms (medial, intermediate, lateral), Metatarsals, Phalanges b) Posterior tibio-talar (to medial tubercle of talus) Tibio-calcaneal (to calcaneal shelf = sustenaculum tali) Tibio-navicular (to tuberosity of navicular) Anterior tibio talar c) Tibialis post tendon, flex digit long tend, **post tibial art** and vn, posterior tibial nv, flexor hall long tendon	At least **6 out of 7** **2/4** to pass **2 tendons and post tibial art** to pass

Foot 2014-1-C

Stem: A 70-year-old diabetic man is being treated for sepsis from an ulcer on his foot. We will start with Anatomy.			
TOPIC	QUESTIONS	KNOWLEDGE **(essential in bold)**	NOTES
Question 1 Foot (bone) **Subject** Anat LOA: 1	a) Identify the bones of the foot b) Demonstrate the attachments of the medial collateral ligament (deltoid ligament) c) Describe the structures running immediately posterior to the medial malleolus	a) Talus, Calcaneus, Cuboid, Navicular, Cuneiforms (medial, intermediate, lateral), Metatarsals, Phalanges b) Posterior tibio-talar (to medial tubercle of talus) Tibio-calcaneal (to calcaneal shelf = sustenaculum tali) Tibio-navicular (to tuberosity of navicular) Anterior tibio talar c) Tibialis post tendon, flex digit long tend, **post tibial art** and vn, posterior tibial nv, flexor hall long tendon	At least **6 out of 7** **2/4** to pass **2 tendons and post tibial art** to pass

Foot arches 2009-1

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1:	Name the bones of the foot Which of these constitute the medial longitudinal arch	• **Medial** – calcaneus, talus, navicular, 3 cunieforms, 3 metatarsals	Name all the bones with prompt if necessary Name major bone groups for med arch
Question 2:	What are the major factors contributing to the stability of the bony arches of the foot	**Passive** • **Bony** – shape of united bones Talus is the "keystone" • **Fibrous** (ligamentous) Plantar calcaneonavicular (Spring) lig Plantar calcaneocuboid (short plantar) lig Long plantar ligament Plantar aponeurosis **Dynamic** • Intrinsic muscles • **Long tendons** Flexor Hallucis & FDL – longitudinal arch Fibularis longus and Tib Post	Bold plus three ligs and three tendons to pass
Question 3:	What is the function of the longitudinal arches of the foot	• Shock absorbtion • Distribute bodyweight over the pedal platform • Act as springboards when walking, running and jumping	2/3 to pass

Foot bones 2012-2

TOPIC	QUESTIONS	KNOWLEDGE (**essential in bold**)	NOTES
Question 1: **Bone** Bones of the foot LOA: 2	Identify the bones of the tarsus and foot	**Talus** – body, neck, head, trochlea **Calcaneus** – tuberosity ,**Navicular** – tuberosity, **Cuboid** **Cuneiforms** – medial, intermediate & lateral **Metatarsals** - 1-5 **Phalanges** – prox, middle & distal	Name all bold
	What are the major dorsiflexors of the foot and where do the attach	Tib anterior – base 1st met, med cuneiform EHL – middle & distal ph EDL – distal ph F Tertius – base of 5th met	3 of 4

Foot nerves 2015-1-D

Stem: Once he has stabilised the repair continues. We will now move to Anatomy.			
Question 3 Sole of foot (photo) **Subject:** Anat LOA: 1	1. Identify the structures in this photograph?	<u>Medial to lateral</u> Abd hallucis (2); Fibrous flexor sheath (5); Flexor hallucis longus (11); Medial plantar nn (19/20); lateral plantar nn (14); Lateral plantar aa (13); Flexor digiti minimi brevis (7); Abd. Digiti minimi (1)	4/8 of this list
	2. You decide to perform a nerve block at the ankle. Describe the cutaneous nerve supply of the sole of the foot	**Posterior tibial nerve** - supplies sensation to most of volar foot and toes Medial, and lateral plantar nerves (terminal brs of tibial nn) **Sural nerve** - supplies lateral border (volar and dorsal) of foot Calcaneal branches (tibial and sural nn) supply heel	Bold
	3. What is the surface anatomy of these nerves at the ankle joint?	**Posterior tibial nerve**- runs with posterior tibial aa - located on **medial aspect ankle** between medial malleolus and Achilles tendon **Sural nerve** - located on **lateral aspect of ankle** between Achilles tendon and lateral malleolus	Bold

Foot sensation 2011-1

Q5. Foot sensation	Describe the peripheral nerves which supply sensation to the foot?	Peripheral nerves - sole- **tibial nerve** (heel region by medial calcaneal branches, lateral sole by lateral plantar nerve and medial by medial plantar nerve) - dorsum of foot- lateral border by sural nerve, most of dorsum supplied by **superficial fibular (peroneal) nerve, 1st web space by deep fibular (peroneal) nerve**. - Saphenous n.	Must have tibial nerve for sole and mainly fibular nerves (superficial and deep) for dorsum to pass
	Describe the dermatomes of the dorsum of the foot. **Bonus**	Dorsum- S1 lateral 2 toes and border of foot, **L5 from lateral leg to medial foot including other toes**, L4- medial border foot and heel Dermatomes - Sole – S1 and L5 form the bulk of the sole, S1 laterally and L5 medially. L4 and S2 may also contribute on medial border of sole.	L5 and S1 must be included with understanding of lateral border for S1 and medial dorsum for L5

Foot vasculature 2017-2-C

Stem: Moving on to Anatomy. As part of your assessment you examine the distal pulses in the lower limb.			
Question 4 **Subject: Anat** Image of foot showing arteries. Arterial Supply of the Foot LOA: 1	Where do you palpate the distal pulses?	PT – Between the medial malleolus and the achilles tendon DP - Mid arch between the 1st and 2nd metatarsal or lies midway between malleoli or between EHL and EDL/EBL	Both
	Identify the dorsalis pedis artery and the surrounding landmarks on this image.	Able to point out **Dorsalis Pedis artery (3),** EHL (7), EDL (5)/EBL (6), metatarsals	DP and one adjacent structure to pass
	Describe the venous drainage of the foot.	Superficial and deep veins. Deep: paired veins which accompany all arteries internal to the deep fascia. Superficial: subcutaneous and not accompanied by arteries. Perforating veins provide one-way shunting of blood from superficial to deep veins. **Dorsal venous network/arch** of digital and metatarsal veins drain into the dorsal venous arch of the foot. Plantar venous network forms the medial marginal vein which becomes the **great saphenous vein** or lateral marginal vein which becomes the small saphenous vein.	**Bold** to pass

Foot XR 2013-1

Question 2 X-Ray Foot AP/lat	Identify the bones in this xray What are the movements that occur in the **foot** and the joints where those movements occur?	**Calcaneus, Talus, Navicular, 3 Cuneiforms ,cuboid** and **metatarsals,** phalanges, distal tibia, distal fibula). **Inversion / eversion - subtalar (talocalcaneal) and calcaneocuboid** Flexion /extension at MTP joints Flexion /extension at IP joints	4 of 5 bold plus 2 others Must ID eversion /inversion and name one of the two joints involved

Great toe 2005-1

TOPIC: Great Toe _____ **NUMBER: 2-4** _____

OPENING QUESTION	What nerves are responsible for sensation of the great toe?	**COMMENTS**
POINTS REQUIRED	1 Deep peroneal in the web	3 to pass
	2 superficial peroneal on the dorsum	
	3 medial plantar on the bottom	
	4 sometimes some saphenous on medial side at the MTP	
	5	
	6	
	7	
PROMPTS		
SECOND QUESTION (if needed)	What roots?	Pass
POINTS REQUIRED	1 L5	
	2	
	3	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)	What myotomes govern movement of great toe?	Both to pass
POINTS REQUIRED	1 5,1 extension	
	2 1,2 for plantar flexion	
	3	
	4	
PROMPTS	Legitimate	

Inferior Extensor Retinaculum 2007-2

TOPIC: MODEL: ANKLE **NUMBER:** 3

OPENING QUESTION (if needed)	Demonstrate the attachments of the inferior extensor retinaculum	
POINTS REQUIRED	1 upper anterior surface of calcaneus	
	2 Y-shaped 1. medial malleolus 2. blends with plantar aponeurosis	
	3	
PROMPTS		
SECOND QUESTION (if needed)	Identify the structures passing beneath the IER	4/6 to pass
POINTS REQUIRED	1 tibialis anterior	
	2 extensor hallucis longus	
	3 ant tibial artery ------ dorsalis pedis artery	Level of ankle joint
	4 deep fibular nerve	Deep peroneal nerve
	5 extensor digitorum longus	
	6 fibularis tertius	Peroneus tertius
PROMPTS		

THIRD QUESTION What is the function of the inferior extensor retinaculum?

Prevent bowstringing of extensor tendons when ankle dorsiflexed.