

VIVAs
thorax

ACEM 2003.1 PRIMARY VIVA EXAMINATION

SUBJECT: **ANATOMY**

TOPIC: CHEST X-RAY _____ NUMBER: 1 AM _____

OPENING QUESTION	Q1: IDENTIFY THE MEDIASTINAL STRUCTURES VISIBLE IN THIS CHEST X-RAY.	COMMENTS
POINTS REQUIRED	1 TRACHEA	6 TO PASS
	2 CARINA	
	3 SVC, RA, RV, LA, LV	
	4 ARCH	
	5 PULM TRUNKS	
	6 IVC	
	7	
PROMPTS	"WHAT STRUCTURES MAKE UP THE BORDERS OF THE HEART"	

TOPIC: Heart _____ NUMBER: 2.3 _____

OPENING QUESTION	Identify the great vessels on this model	COMMENTS
POINTS REQUIRED	1 Aorta – ascending, arch, descending	
	2 Brachiocephalic trunk	
	3 L Common Carotid	
	4 L Subclavian	
	5 SVC	
	6 L & R Pulmonary Arteries	
	7 Pulmonary Veins - paired	
PROMPTS		
SECOND QUESTION (if needed)	Identify the Ligamentum Arteriosum What is the role of the ductus arteriosus in the foetus?	
POINTS REQUIRED	1 Bypasses Lungs – deoxygenated blood from head – BCVs – RA – RV – Pulmonary Trunk – DA – Aorta – Umbilical Artery - Placenta - Reoxygenated	
	2	
	3	

3. Photo – thoracic inlet - aa	1. Using photograph demonstrate branches of aortic arch	1 brachiocephalic trunk 2 left common carotid 3 left subclavian not visible
	2. What are the branches of 1 st part of subclavian artery	1 vertebral 2 thyrocervical trunk 3 internal thoracic (mammary)
	3. What are the branches of the thyrocervical trunk	1 transverse cervical 2 suprascapular 3 inferior thyroid

SUBJECT: **ANATOMY**

TOPIC: CXR _____ NUMBER: 2-1 _____

OPENING QUESTION	Identify the mediastinal structures visible on this chest xray	COMMENTS
POINTS REQUIRED	1 trachea	7 of 10 to pass
	2 carina	
	3 SVC	
	4 RA/RV/LA/LV	Must get inf border
	5 aortic arch	
	6 pulm trunks	
	7 IVC	
PROMPTS	What about the Inferior border of Heart	
SECOND QUESTION (if needed)	Describe the surface markings of the pleura	5 of 8 to pass
POINTS REQUIRED	1 3cm above clavicle	
	2 comes together T2	
	3 diverges T4 left, T6 right	
	4 MCL T8 MAL T10 12 th rib T12	
	5 Lung edge is 2 rib levels higher	
	6	

ACEM 2005.2 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: First rib: Reltnshps of nerves & vessels _____ NUMBER: 1.3 _____

OPENING QUESTION	What bone is this? Please demonstrate its bony features.	COMMENTS
POINTS REQUIRED	1 st rib	essential
	1 head, 2 neck, 3 scalene tubercle, 4 shaft, 5 tubercle, 6 grooves for subclavian artery and vein	4/6 to pass
PROMPTS	For each item if not mentioned	
SECOND QUESTION	What are the muscle attachments ?	
POINTS REQUIRED	From back, 1 serratus anterior 2 scalenus medius 3 scalenus ant (onto scalene tubercle b/w subclav art & vein) 4 subclavius (onto costochond jctn)	Scalenus ant and 1 other
THIRD QUESTION	Which structures are related to it ?	
POINTS REQUIRED	1 Symp trunk/cervicothor gang (in contact with ant border neck of rib) 2 1 st post intercost vein & sup intercost art (Lat to head) 3 T1 n root < neck & C8 n root > neck > inf trunk brachial plexus 4 Dome of pleura/apex lung* (hold nn & vv against front of neck of rib) 5 From back, scal med, subclav art*, inf brac plex above, scal ant, subclav v*	All 4 * to pass

ACEM 2005.2 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Model; Heart, Chambers & Valves _____ NUMBER: 3.1 _____

OPENING QUESTION	Identify the chambers and valves of the heart on this model	COMMENTS
POINTS REQUIRED	RA, LA, RV, LV Tricuspid, Aortic, Pulmonary, Mitral	Identify all 4 chambers and valves needed to pass
SECOND QUESTION	Identify the structural components of the tricuspid valve.	
POINTS REQUIRED	1 3 cusps* (ant, post and septal attached to fibrous AV ring) 2 Chordae tendinae* 3 Papillary muscles*	
PROMPTS		
THIRD QUESTION (if needed)	Identify the main features of the right atrium	
POINTS REQUIRED	1 SVC* 2 IVC* 3 Auricle 4 Coronary sinus 5 Fossa ovalis	* essential plus one other
PROMPTS	Prompt for other structures	

ACEM 2006.1 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Intercostal tube _____ NUMBER: Th 1

OPENING QUESTION		COMMENTS
What are the surface landmarks for the insertion of anterior and lateral intercostal tubes		
POINTS REQUIRED	2 nd intercostal space in the mid clavicular line	Could know
	4 th or 5 th intercostal space just anterior to the mid axillary line	Must know
PROMPTS		
SECOND QUESTION (if needed)	What are the layers traversed when inserting lateral chest wall?	
POINTS REQUIRED	1 Skin & subcutaneous tissue	
	2 Layers of muscle (3 layers)	
	3 Parietal Pleura	1, 2 & 3 to pass
	4.	
	5.	
	6	
PROMPTS		
THIRD QUESTION (if needed)	Where do the intercostal vessels run?	
POINTS REQUIRED	Under the rib above	Must know
	Between the middle and innermost intercostal muscles	Must know
	There is also collateral insignificant vessels at the lower section of the intercostal space	Could know

ACEM 2006.1 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Coronary AA Arterial supply of the conduction system NUMBER: Fri 2 3

OPENING QUESTION		COMMENTS
On the model, identify the arterial supply of the heart.		
POINTS REQUIRED	1 Right and left coronary arteries	Must know
	2 Right marginal	Must know and 3 of 2,3,4&5 to pass
	3 Posterior IV	
	4 Anterior IV	
	5 Circumflex	
PROMPTS		
SECOND QUESTION (if needed)	Point out the course of the and branches of the right and left coronary artery.	
POINTS REQUIRED	1 SA nodal artery (RCA) <i>CAF</i>	
	2 AV nodal artery (RCA) <i>CAF</i>	
	3	
	4.	
	5.	
	6	
PROMPTS		
THIRD QUESTION (if needed)	Describe the arterial supply to the cardiac conduction system	
POINTS REQUIRED	1 Sino arterial nodes – RCA 60%, Circumflex 40%	
	2 AV Node and bundle –RCA AV nodal artery	
	3 R & L Bundles and Purkinje fibres – Anterior IVA (LAD)	2 of 3 to pass
	4	
PROMPTS		

ACEM 2007.1 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Heart _____ NUMBER: _____

OPENING QUESTION		COMMENTS
POINTS REQUIRED	Demonstrate the chambers of the heart?	
	1 All 4 chambers	4/4 to pass
	2	
	3	
	4	
	5	
	6	
	7	
PROMPTS	What do you think this structure is (point to SVC)	
SECOND QUESTION (if needed)	What valves are these?	2/2 to pass
POINTS REQUIRED	1 Pulmonary	
	2 Aorta	
	3	
	4	
	5	
	6	
PROMPTS		
THIRD QUESTION (if needed)	Demonstrate the coronary arteries and their branches.	5/6 to pass (must include mandatory)
POINTS REQUIRED	1 R Coronary	Mandatory
	2 L Coronary	Mandatory
	3 R marginal	
	4 Posterior IV	
	5 Anterior IV (LAD)	Mandatory
	6 Circumflex	Mandatory
PROMPTS	If mandatory omitted	

ACEM 2007.1 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Chest X ray _____ NUMBER: _____

OPENING QUESTION		COMMENTS
POINTS REQUIRED	Demonstrate the structures that make up the mediastinal contours	5 of 7 to pass
	1) Sup VC	
	2) R atrium	
	3) bit of IVC	
	4) R Ventricle	
	5) L Ventricle	
	6) L atrium	
	7) Aorta	
PROMPTS	Trace pointer round the contour, and ask 'what structures are making this edge?'	
SECOND QUESTION (if needed)	Point to diaphragms: Ask: what is this structure, and what are its attachments?	Adequate concept for pass
POINTS REQUIRED	1) Crura R is fixed to upper 3 lumbar vert, and discs between. L is attached to upper 2. R crus fibres slope up to L and surround oesoph	
	2) Median arcuate lig is fibres from medial edge of each crus that unite with each other in front of aorta at T12	
	3) Medial arcuate is thickening of psoas fascia, from L1/L2 vert to a ridge on transverse process of L1	
	4) Lat arcuate lig starts from transverse process and goes to 12th rib lat to quad lumb	
	5) Digitation from the tip of 12 th -7 th rib/costal cart	
	6) in front, fibres that pass backward from the Xiphisternum	
	7) may also say it is attached to IVC and pericardium	
PROMPT	Where does it attach at the front, sides, back?	
THIRD QUESTION (if needed)	What are the openings in the diaphragm	Only need to know 2 of big 3
POINTS REQUIRED	1) Aortic opening at T12, midline. also transmits azygos vein and thoracic duct	
	2) Oesophageal opening at T10, 2.5 cm to L of midline, surrounded by sling from r crura. vagal trunks. Gastric	
	art and vein, and lymphatics	
	3) Vena caval foramen is at T8, just to r of midline. R phrenic is alongside.	
	4) Others include splanchnic nerves, sympathetic trunk, subcostal nerve and vessels, L phrenic, neurovasc bundles of 7-11 intercostal spaces, superior epigastric vessels	

Question 5:	<p>1. What are the different parts of the diaphragm.</p> <p>2. What are their attachments?</p> <p>3 How is the nerve supply of the diaphragm?</p> <p>4 How does contraction of the diaphragm result in ventilation of the lungs?</p>	<p><u>relation in the upper arm</u></p> <p>1. Costal muscular portion, Crural (lumbar) portion, Central tendinous portion</p> <p>2. Costal portion attaches to lower 6 ribs and costal cartilages Crural portion attaches to L1-3 bodies, anterior longitudinal ligament and IV discs Central tendinous portion attaches to costal portion and inferior fibrous pericardium and falciform ligament</p> <p>3. Phrenic nerves – only motor nerve to costal and crural portions, sensory to central tendon (and adjacent pleura, pericardium and peritoneum) Separate innervation of R=L sides Separate innervation of crural and costal portions Lower 6 intercostal nerves are sensory for costal portion.</p> <p>4. Descent in inspiration causes increase in superior – inferior thoracic volume Diaphragmatic contractions responsible for 75% of inspiratory respiratory muscle action</p>	<p>To pass - name at least T and Costal portions</p> <p>2 Identify costal portion a to lower ribs and tendinos portion.</p> <p>3 Identify that phrenic ne: only motor supply to diap (C3-5 +/-1)</p> <p>Bonus question</p>
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Question 3:	<p>a) Using this model, describe the arterial supply of the heart</p> <p>Model: Heart</p> <p>(Heart model assembled at start of question, remove aorto-pulmonary root as question asked)</p> <p>b) What does the R coronary artery supply?</p> <p>c) Demonstrate the venous drainage of the heart (BONUS MARKS)</p>	<p>Main coronary vessels arise from corresponding aortic sinus above aortic valve. R coronary courses inf in av groove Gives off branches to SA node Marginal Post interventric AV nodal)</p> <p>L coronary bifurcates into Circumflex and LAD (anterior I – V art) Circ gives off Marginal branch, and LAD gives off diagonals.</p> <p>R atrium Most of RV Diaphragmatic surface LV Post 1/3 septum 60% SA 80% AV</p> <p>Major drainage is via the Coronary sinus 3 main tributaries are great (accompanies LAD, then Circ), middle (accompanies PIV) and</p>	<p>5/9 bold to pass</p> <p>3/6 bolded to pass</p> <p>3/6 to pass</p>
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ACEM 2007.2 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY 6/9/07 morning

TOPIC: Photo: Thorax _____ NUMBER: 5

OPENING QUESTION	In this picture, please identify the major vascular structures	COMMENTS
POINTS REQUIRED	1 Left (13) & right (18) brachiocephalic veins and SVC (26)	Needed to pass 7/10
	2 Left internal jugular vein (8)	
	3 Subclavian veins (24 left & right)	
	4 Left common carotid artery(14)	
	5 Brachiocephalic trunk (4)	
	6 Right common carotid artery (19)	
	7 Right subclavian artery (21)	
	(Thyrocervical trunk (32) and branches extra: inf thyroid(6), asc cervical (3), int thoracic art (9) etc)	
PROMPTS	One of the veins has been removed from the right side REMOVE PICTURE AT END OF FIRST QUESTION	
SECOND QUESTION (if needed)	Please describe the branches of the descending thoracic aorta	
POINTS REQUIRED	1 Posterior intercostal arteries (paired post x 9)	Needed 2/4 to pass
	2 Oesophageal (unpaired ant x 2-5)	
	3 Bronchial (paired lat) – left more than right	
	4 (Pericardial, mediastinal, subcostal, sup phrenic)	
	5	

		<p>small cardiac veins (accompanies R marginal). Oblique vn L atrium marks start of sinus.</p> <p>Ant cardiac vn's start ant surface RV, drain straight into r atrium</p> <p>Smallest cardiac vn's (venae cordis mininae) drain direct into chambers</p>	
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Question 4:	<p>Identify the vascular structures in this photo</p> <p>Photo: Thoracic inlet Major vessels and relationships</p> <p>What are the branches of the subclavian artery? You will not be able to see all of them in the photo</p> <p>What are the posterior relations of the thyroid gland?</p>	<p>Major - left common carotid 14, right brachiocephalic trunk 4, right 19 common carotid, right subclavian art 21, right 18 and left 13 brachiocephalic veins, right and left subclavian vv 24, L1J 8</p> <p>Minor – inferior thyroid vein, branches of thyrocervical trunk</p> <p>Branches are vertebral artery, the internal thoracic artery 9, the thyrocervical trunk 32, the dorsal scapular artery.</p> <p>Cricothyroid membrane, trachea, right and left common carotid arteries laterally</p>	<p>5/8 major</p> <p>2/4</p> <p>Extra info</p>
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ACEM 2008.1 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Chest Wall _____ NUMBER: Thurs AM Question 5

OPENING QUESTION		COMMENTS
POINTS REQUIRED	Describe the intercostal muscles	External + internal + one other to pass
	1 External intercostal – from tubercles of ribs posteriorly to costochondral junction (thence external intercostal membrane) run infero-anteriorly and are most active during inspiration (to increase tonus of intercostal space) and during forced inspiration	
	2 Internal intercostal – deep to and at right angles to externals from sternum to angle of ribs posteriorly (continued posteriorly as internal intercostal membrane) run infero-posteriorly and are most active during expiration (to increase tonus of intercostal space). Interosseous portions act during forced expiration whilst interchondral portion act during active inspiration	
	3 Innermost intercostals – essentially the deeper parts of the internals separated from them by the intercostal nerves and vessels. Occur laterally	
	4 Subcostals – run in the same direction as the internals, but cross 2 or 3 spaces, lower spaces	
	5 Transverse thoracic – run from sternum and xiphisternum transversely to lower ribs	
	6 Levator costarum – from transverse processes to ribs	
PROMPTS		
SECOND QUESTION (if needed)	Describe the pattern of distribution of neurovascular structures in the thoracic wall.	Order of neurovascular and relation to rib and groove
POINTS REQUIRED	1 Enter medial most part of posterior ICS	
	2 Run between parietal pleura and internal IC membrane in the middle of the space	
	3 Near angle of ribs pass between internal and innermost IC muscles	
	4 Here in costal grooves, with nerve inferior to artery inferior to vein	
	5 Collateral branches arise here and run along superior border of rib	
	6 Vessels also have anterior supply and drainage	
PROMPTS		
THIRD QUESTION (if needed)	Describe the arterial supply of the intercostal spaces	
POINTS REQUIRED	1 Posterior intercostal arteries (branches of the supreme intercostal from the subclavian [1 & 2] and of the thoracic aorta)	
	2 Anterior intercostal arteries (branches of the internal thoracic [previously: internal mammary] – spaces 1 to 6 & musculo-phrenic – spaces 7 to 9)	

Question 4:	Identify the structures visible in this photo.	Kidneys, ureters, psoas major, diaphragm, adrenals, IVC 7, L renal vein 12, R renal v 23, aorta 1, celiac trunk 2, sup mesenteric art 28,	8 to pass
Photo: Aorta/IVC/kidneys Major vessels, branches and course of	Name the branches of the abdominal aorta	Single - coeliac trunk, superior mesenteric artery, inferior mesenteric artery Paired –common iliacs, ovarian/testiculars, superior and inferior adrenals, right and left inferior phrenics, lumbar arteries	6 to pass
	Name the branches of the coeliac trunk and what do they supply	Arises at T12, supplies liver, stomach, spleen, oesophagus and superior part of duodenum and pancreas branches are L gastric, common hepatic and splenic	Extra info

ACEM 2008.1 PRIMARY VIVA EXAMINATION

SUBJECT: ANATOMY

TOPIC: Cardiac Chambers, Arterial Supply & Venous Drainage NUMBER: 11/4 - 2 _

OPENING QUESTION	Demonstrate the chambers of the heart and their borders?	COMMENTS
POINTS REQUIRED	1 Left ventricle	Need to identify chambers to pass
	2 Right ventricle – ant & post interventricular grooves	
	3 Right atrium & auricle	
	4 Left atrium & auricle – coronary groove	
	5 Crux of the heart	Additional information
PROMPTS	Ask candidate to demonstrate on model	
SECOND QUESTION (if needed)	Demonstrate the arterial supply to the heart?	
POINTS REQUIRED	1 RCA – SA nodal – <u>R marginal</u> – AV nodal – <u>post interventricular (2/3)</u> – interventricular septal	Underlined to pass
	2 LCA – <u>circumflex</u> – SA nodal (40%) – <u>L marginal</u> – post interventricular (15%)	
	3 LCA – <u>LAD</u> - ant 2/3 septum – lateral diagonal	
PROMPTS	Ask main branches of RCA & LCA	
THIRD QUESTION (if needed)	Demonstrate the venous drainage of the heart?	
POINTS REQUIRED	1 Coronary sinus	Coronary sinus to pass
	2 Great cardiac veins	
	3 Middle cardiac veins	
	4 Small cardiac veins	
	5 L post ventricular	
	6 L marginal	
	7 Anterior cardiac	
	8 Oblique veins on the L atrium	
PROMPTS	Ask to list veins	

COMMENTS Must pass Questions 1 & 2 to pass overall

Question 5: Discussion: Surface anatomy of the pleura	Describe the surface anatomy of the parietal pleura. How does surface anatomy of the lung compare to that of the pleura?	1)Sternoclavicular joint to midline at sternal angle 2) inferiorly to xiphoid at 6 th cc level on R, only to 4 th on L where passes laterally to margin of sternum then inf. to 6 th cc 3) reflection to 8 th rib in MCL 4) 10 th rib in MAL 5) 12 th rib at its neck + PAL 6) parallel to vertebral column to T1 7) cervical cupola over the apex of the lung rising to 2-3 cm above the medial 1/3 of the clavicle at the neck of the 1 st rib. Lungs: 2 ribs higher at MAL and posteriorly (CD recess)	4 of 7 plus diversion on the left for the heart. Assumes quiet resps
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Question 3:	Identify the chambers of the heart (heart closed) Identify the valves (heart open) Demonstrate the structures of the conducting system of the heart	muscles– weakness or ankle eversion. L–R atria*, plus auricles L+R ventricles* Aortic, pulmonary, mitral and tricuspid valves* SA node*: Ant-lat near the junction of the SVC and R atrium AV node*: Post-inf region of the inter-atrial septum, near the opening of the coronary sinus AV Bundle of His: Through the fibrous skeleton of the heart, along the membranous part of the inter-ventricular septum. Divides into R +L bundles which pass on each side of the muscular IV septum	* essentials to pass *essentials to pass
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Question 5: Surface Anatomy of the Pleura	Describe the surface anatomy of the parietal pleura. What is the clinical significance of the attachment of the pleura? (Prompt – Are there any parts of the pleura that are more likely to be injured?)	Sternoclavicular joint to midline at SM joint Passes inferiorly parasternally to 6 th ICC on R and 4 th ICC on left where it deviates to the left. 8 th rib in MCL 10 th rib in MAL 12 th rib in PAL Small section medial to this is inferior to the 12 th rib Posteriorly - parallel to vertebral column to T1 Cupola rises 2-3 cm above medial 1/3 of clavicle at the neck of the 1 st rib Cervical pleura may be injured Deviation of pleura to the left provides a window for pericardiocentesis without traversing the pleura. The attachment of the pleura at a lower level than the lungs (posterolaterally) favours collection of pleural fluid in this area (drainage, clinical findings). Penetrating injuries to the upper lumbar region	At least At least
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TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1: Soft tissues on CXR	Demonstrate the borders of the mediastinum on this Xray	SVC RA RV (Apex) (L ventricle) L Auricular appendage Pulmonary trunk Aorta R brachiocephalic v.	At least 6 correct to pass
Structures transected at the sternal angle	In the supine position, which mediastinal structures are located at the same level as the sternal angle. (Prompt: What mediastinal structures would you see if you looked at a transverse slice through the chest at the level of T4-5?)	Mediastinal structures Carina (bifurcation) Division of pulmonary trunk Reflection of the pericardium SVC (enters R atrium) Hila of the lungs Transverse fissure of R lung Ascending aorta becomes arch Arch becomes descending Aorta Phrenic nerve Vagus nerve L recurrent laryngeal nerve origin Azygos vein Thoracic duct (crosses from R to L) Pleura approaches the midline anteriorly	At least 6 correct to pass
Question 3: Model of Heart	Identify the chambers of the heart on this model Demonstrate where the major components of the conducting system would be found on this model	RA, LA, RV, LV, SAN – junction of SVC and RA AV-node – postero-inferior interatrial septum near coronary sinus AV bundle Right and left bundles	All 4 correctly identified to pass. Name major parts and generally accurate location

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1: Xray Chest	Please demonstrate mediastinal borders on this X-ray	Aortic arch, SVC, Right atrium, Right ventricle, Pulmonary trunk, Left auricle, Left ventricle	Six to pass
	Please describe the surface anatomy of the heart.	Left 2 nd costal cartilage, Right 3 rd costal cartilage, Right 6 th costal cartilage and 5 th ICS in left Midclavicular line	Overall correct position to pass (allow 1 space difference for each location)