

## VIVAs spine

### CERVICAL

<b>TOPIC 3</b>	Vertebra		
<b>QUESTIONS AND ANSWERS</b>	Demonstrate the features of this bone: Odontoid, superior and inferior articular facets, body, pedicles, foramina transversaria, pedicle, lamina, bifid spinous process	6/8 to pass	
	Discuss the stability of the atlantooccipital joint: Bony: peg, articular facets Ligamentous: anterior longitudinal, tectorial/ cruciform Apical, alar, nuchal ligament	2 bony features and top 2 ligaments to pass	
Question 2: Bone: C2	Identify this bone and its anatomical features  What are the major ligaments attaching to this bone and where do they attach	C2 (axis) – dens (must) - sup/inf articular facets, trans process, bifid s.p, lamina, pedicle, body (at least 5 to pass) General – tectorial mem (pll), ant a-a mem (all), lig flav (p a-a lig) Specific – cruciate (transverse and long fibres) - alar	Dens and 5 others to pass  1 of 3 (alar & cruciate to pass)
<b>TOPIC</b>	<b>QUESTION</b>	<b>ESSENTIAL KNOWLEDGE</b>	<b>NOTES</b>
Question 1:	a. Describe the features of this bone (Lumbar) b. What region of the spine is this from c. what is different about this bone (cervical)	Body: pedicles facet joints including articular facets, laminae Processes: transverse and posterior Spinal canal, vertebral artery (lateral foramina) for cervical only  Key differences: Smaller body Longer thinner and downward sloping spinous process facet joints more horizontal allow greater range of movement foramen transversarium larger canal uncinate process anterior and posterior transverse process no accessory tubercle	4 Major features to pass.  Correctly identifies cervical and lumbar describing key differences  4 to pass
Question 2:	What principle movements occur between this vertebra (cervical) and its neighbours  Prompt if required: what are the movements at the facet joints	Cervical: relatively flat facet joints permitting free movement in all directions: rotation, flexion and lateral flexion.	Correct interpretation of facet joint orientation and functional result.

TOPIC: Bones: C1 and C2 \_\_\_\_\_ NUMBER: 2 \_\_\_\_\_

OPENING QUESTION		COMMENTS
	Describe the features of this bone (C2)	
<b>POINTS REQUIRED</b>	1 odontoid peg (dens) and body	6/10 to pass
	2 vertebral foramen (s.c.) transverse foramen (v.a.)	Identify it as C2
	3 inferior/superior articular surfaces	
	4 pedicle	
	5 transverse process	
	6 lamina	
	7 spinous process	
<b>PROMPTS</b>		
<b>SECOND QUESTION (if needed)</b>	What ligaments stabilise the atlantoaxial joint?	
<b>POINTS REQUIRED</b>	1 Cruciate ligament which has two components	Cruciate and tectorial to pass i.e. 2/3
	Transverse- between lateral masses of C1- strong	
	Longitudinal- occiput to body C2- weak	
	2 Alar ligament- side of peg to foramen magnum	
	3 tectorial membrane- continuation of PPL from body of C2 to internal occiput	
<b>PROMPTS</b>		
<b>THIRD QUESTION (if needed)</b>	What movement occurs at the C1/C2 joint?	
<b>POINTS REQUIRED</b>	Rotation of C1 on C2	

TOPIC: Cervical Vertebra \_\_\_\_\_ NUMBER: 3.2 \_\_\_\_\_

OPENING QUESTION		COMMENTS
	Identify the major parts of this bone	
<b>POINTS REQUIRED</b>	1 Body (smaller than triangular vertebral foramen)	4 of 5 to pass
	2 Transverse Process with foramen	
	3 Lamina	
	4 Spinous Process	
	5 Superior and Inferior Articular Processes	
<b>PROMPTS</b>	What is this called?	
<b>SECOND QUESTION (if needed)</b>	Describe the joint between adjacent cervical vertebrae	
<b>POINTS REQUIRED</b>	1 Intervertebral Joint	
	2 Synovial facet joint	
	3	
	4	
	5	
	6	
<b>PROMPTS</b>		
<b>THIRD QUESTION (if needed)</b>	What movements occur at the facet joints?	
<b>POINTS REQUIRED</b>	1 Upper facets face obliquely up and back	
	2 Lower facets face down and forwards	
	3 Flexion/Extension, lateral flexion (abduction)	
	4 No rotation	

## THORACIC

rompt: Bone: Mid Thoracic Vertebra, not articulated

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1:	Describe the features of this bone  If required prompt: What region of the spine does this bone come from. Begin with the features.	Body: location of invertebral disc attachments pedicles, facet joints including articular facets, laminae, articular facets for ribs on body and transverse process Processes: transverse and posterior Spinal canal	4 Major features to pass.  Identify thoracic vertebra
Question 2:	How does this differ from vertebrae in other regions	Cervical: smaller body, larger canal, very small and often bifid spinous process, canal for vertebral artery, facet joints flatter, no ribs.  Lumbar: larger body, smaller canal, spinous process square and more directly posterior, no articulations for ribs, more prominent transverse processes.  Sacral: only mention to dismiss	Minimum 3 differences for each.  Reasonable description of differences.

TOPIC: Thoracic Vertebra \_\_\_\_\_ NUMBER: a.m. 2 \_\_\_\_\_

OPENING QUESTION	Identify the major features of this bone	COMMENTS
POINTS REQUIRED	1 Body	6/9 for pass
6/10 to pass	2 Pedicle	
	3 Lamina	
	4 Transverse process	
	5 Vertebral Canal	
	6 Superior articular facets	
	7 Inferior articular facets	
	8 Costal facet ( for tubercle)	
	9 Body articular facets ( for head)	
PROMPTS	Demonstrate where the ribs articulate	
SECOND QUESTION (if needed)	Describe the ligamentous attachments between adjacent thoracic vertebrae	
POINTS REQUIRED	1 Ant Longitudinal	Mandatory
4/6 to pass	2 Posterior Longitudinal	Mandatory
	3 Supraspinous	And 1 other for pass
	4 Interspinous	
	5 Ligamentum flavum (between laminae:ant surface above to post surface below)	
	6 Intertransverse	

TOPIC 3	QUESTIONS AND ANSWERS	
	Demonstrate the bony features of this vertebra (prompt – which level and why)	Body, Spinous process, transverse process, articular facets, facets for ribs, pedicle, laminae.-all to pass.
	What changes occur from upper to lower thoracic vertebrae.	Body heart to kidney shape, spinous process from long vertical to short horizontal. Facets on transverse process concave to flat, costal facets on body from demi to single on 10,11,12, spinal canal from round to triangular-p 2/5 to pass.

# LUMBAR

TOPIC: Bone: L2 vertebra; NUMBER: 2.3

OPENING QUESTION	Would you please describe the bony features of this vertebra ?	COMMENTS
POINTS REQUIRED	1 Body*	* essential
	2 Neural arch; lamina* : pedicles*; intervert foramina	
	3 Vertebral/neural foramen	
	4 Spinous process*	
	5 Transv proc* (+for in cerv, +cost facets in thor, +costal element in lumbar)	
	6 Artic proc* sup & inf facet (zygapophysyal) jts	
	7 Groove for medial br post ramus spinal nerve with mamillary process above, and accessory tubercle below.	
SECOND QUESTION	Which area is this vertebra from and why?	
	Lumbar vertebra* No costal facets* No foramen in transverse process Triangular vertebral foramen Articular facets lie in AP plane Kidney shaped body Large Mamillary bodies	*essential plus two others
THIRD QUESTION	What movements occur at the lumbar spine?	
POINTS REQUIRED	1 Flexion & extension free*	*essential
	2 Lateral flexion good	
	3 Limited Rotation*	

TOPIC 3	Lumbar Vertebra	
QUESTIONS AND ANSWERS	Demonstrate the bony features of this vertebra Prompt which vertebra if not identified	Body, transverse and spinous processes, pedicles, laminae, articular processes to pass
	Discuss stability at the intervertebral joints	Plane of joints, ligaments (capsule, ant and post long., spinous, transverse, flavum) to pass

TOPIC: Lumbar Vert question NUMBER:

OPENING QUESTION	Identify the major features of this bone	COMMENTS
POINTS REQUIRED	1) Medially oriented facets, for flex/extension, no rotation	6/6 to pass
	2) Wedge shaped deep in front and shallow behind, although often not	
	3) Pedicles attached to upper half	
	4) Kidney shaped (thoracic are heart shaped)	
	5) Space for vert canal is triangular	
	6) Spinous process is horizontal	
	7) Mamillary process on articular process/accessory tubercle on transverse process	
PROMPTS		
SECOND QUESTION (if needed)	What factors are responsible for stability between adjacent lumbar vertebrae?	Address all 3 factors for pass
POINTS REQUIRED	1) Bony..intervert discs ( not really boney), orientation of facets	
	2) Ligamentous..major include ant and post spinal ligaments/supraspinous/interspinous/intertransverse/ligamentum flavum	
	3) Muscular..thick mass of muscle both ant and post (erector spinae)	
PROMPTS	What are the ligamentous factors?	
THIRD QUESTION (if needed)	What layers will be passed through when performing a lumbar puncture?	
POINTS REQUIRED	1) Skin	5/6 for pass
	2) Subcut fat	
	3) Supraspinous ligament	
	4) Interspinous ligament	
	5) Ligamentum flavum	
	6) Extradural fat/Dura/Arachnoid	

COMMENTS

# RIBS

TOPIC: Rib & Thoracic Vertebrae \_\_\_\_\_ NUMBER: 1.2 \_\_\_\_\_

OPENING QUESTION	Identify the major parts of this bone	COMMENTS
POINTS REQUIRED	1 Head	6 of 7 to pass
	2 Neck	
	3 Tubercle	
	4 Angle	
	5 Shaft	
	6 Facets	
	7 Groove	
PROMPTS	Which Side is it?	
SECOND QUESTION (if needed)	What are the contents of the intercostal space	
POINTS REQUIRED	1 Three layers	4 of 5 to pass
	2 Between middle & inner under rib above lies:	
	3 Vein	
	4 Artery	
	5 Nerve	
	6	
PROMPTS	Show us where they sit	

Question 2: Bone: First rib	<p>a. What bone is this? PROMPT: What side is it from?</p> <p>b. What are the bony landmarks?</p> <p>PROMPT: What vessels are related to this bone?</p> <p>c. What muscles attach to this bone?</p>	<p>a. First rib Appropriate side</p> <p>b. Landmarks</p> <ul style="list-style-type: none"> <li>• Head (with single facet for T1)</li> <li>• Neck</li> <li>• Tubercle for transverse process of T1</li> <li>• Superior surface, medial to lateral:               <ul style="list-style-type: none"> <li>◦ Groove for subclavian artery</li> <li>◦ Scalene tubercle and ridge</li> <li>◦ Groove for subclavian vein</li> </ul> </li> <li>• Costal groove</li> </ul> <p>c. Muscles</p> <ul style="list-style-type: none"> <li>• Anterior scalene (tubercle)</li> <li>• Middle scalene (medial to groove for artery)</li> <li>• Longissimus portion of erector spinae attaches between tubercle and angle</li> <li>• Intercostals</li> <li>• Subclavius (at costochondral jn)</li> </ul>	<p>a. Need all bold to pass</p> <p>b. Need all bold to pass</p> <p>c. Need all bold to pass</p>
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TOPIC: First Rib \_\_\_\_\_ NUMBER: \_\_\_\_\_

OPENING QUESTION	What is this bone? What are some of its features?	COM
POINTS REQUIRED	1) First rib	3 out of 6
	2) Head, neck, shaft, tubercle (T1 trans process)	
	3) Groove for subclavian art ( which actually contains lower trunk of brachial plexus)	
	4) Scalene tubercle (sc ant)	
	5) Groove for subclavian vein	
	6) End attaches to first cost cart.	
	7)	
PROMPTS		
SECOND QUESTION (if needed)	What are the neurovascular relations of this bone?	Adequate vessels an
POINTS REQUIRED	1) Nerves are C8-T1 above and below neck, sympathetic trunk in contact with neck next to head, underneath the first intercostal neuro bundle, in groove for subclav art is lower trunk of brachial plexus.	
	2) Vessels are subclav art touching outer border of rib, subclav vein, and under is bundle of first intercostal space	
THIRD QUESTION (if needed)	When performing a needle thoracostomy through a lateral intercostal space, what layers are passed through?	5 out of 6
POINTS REQUIRED	1) Skin	
	2) Subcut fat	
	3) Ext intercostal	
	4) Int intercostal	
	5) transversus	
	6) Parietal pleura	
PROMPTS		

- Serratus anterior (lateral)

**LP**

Question 5:  Discussion: LP Layers penetrated	Name the structures your needle would pass through when performing a lumbar puncture using a midline approach  At what level would you do a LP in an adult and why?	Skin/ subcutaneous tissue/supra-spinous ligament/ inter-spinous ligament/ ligamentum flavum/epidural space + veins/ dura + attached arachnoid/ subarachnoid space (= CSF)  Transcrystal plane ~L4	2/3 ligaments + know that dura is before SA space and CSF is in the subarachnoid space  Extra info
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<b>QUESTION</b>	Describe the anatomical layers passed by a needle in a mid line lumbar puncture	<b>COMMENTS</b>
<b>POINTS REQUIRED</b>	1 Skin	
	2 Subcutaneous tissue	
	3 Supraspinous ligament	
	4 Interspinous ligament	
	5 Ligamentum flavum	
	6 Epidural space	
	7 Dura mater	6 of 8
	8 Arachnoid mater	
<b>PROMPTS</b>		
<b>SECOND QUESTION (if needed)</b>	Describe some of the characteristics of the ligaments passed.	
<b>POINTS REQUIRED</b>	1 Supraspinous: Continuous down the spine. Strong. White Lax in extension and taught in flexion	
	2. Interspinous: Weak ligament	
	3 Flavum: Most important ligament. Attaches to front of the upper lamina and back of the lower lamina	Must know this criterion to pass
<b>PROMPTS</b>		
<b>THIRD QUESTION (if needed)</b>	What are the surface anatomical landmarks when performing a lumbar puncture	
<b>POINTS REQUIRED</b>	A competent answer to pass.	
<b>PROMPTS</b>		

<b>OPENING QUESTION</b>	DESCRIBE THE STRUCTURES THAT YOUR NEEDLE WOULD CROSS IN THE MIDLINE WHEN PERFORMING A LUMBAR PUNCTURE	<b>COMMENTS</b>
<b>POINTS REQUIRED</b>	SKIN/SUBCUT SUPRASPINOUS INTERSPINOUS  LIG FLAVUM  EPIDURAL SPACE DURA SUBARACH/CSF	5 TO PASS

**XR**

TOPIC: C-Spine XR \_\_\_\_\_ NUMBER: 1-1 \_\_\_\_\_

OPENING QUESTION	Identify the major bony features of the cervical spine on this Xray	COMMENTS
<b>POINTS REQUIRED</b>	1 Atlas	6/11 to pass
	2 Anterior + posterior arch of Atlas	
	3 C2	
	4 dens	
	5 vertebral bodies, pedicle, lamina, spinous process	
	6 superior articular processes	
	7 inferior articular processes	
<b>PROMPTS</b>		
<b>SECOND QUESTION (if needed)</b>	Using the X-Ray indicate the location of the ligamentous structures that stabilise the cervical spine.	
<b>POINTS REQUIRED</b>	1 Supraspinous	4 of 6 to pass
	2 interspinous	
	3 ligamentum flavum	
	4 posterior longitudinal	
	5 anterior longitudinal ligaments	
	6 intertransverse	
	7 At C1/C2: Cruciform/ tectorial membrane/ apical/alar	Bonus

TOPIC: Oral atlanto axial view – Landmarks \_\_\_\_\_ NUMBER: \_\_\_\_ TH PM 1

OPENING QUESTION	Could you outline the landmarks of the PEG view?	COMMENTS
<b>POINTS REQUIRED</b>	1 Dens	Must know
	2 Lateral mass of atlas	Must know
	3 Atlanto axial joint	Must know
	4 Lateral mass of axis	Must know
	5 Mandibular ramus	Must Know
	6 Bifid posterior spine of the axis	Possible
	7 Posterior arch of the atlas	Possible
	8 Atlanto – occipital joint	Possible
	9 Other	Possible
<b>PROMPTS</b>	What is this structure etc?	
<b>SECOND QUESTION (if needed)</b>	What movements occur at C1 and C2?	
<b>POINTS REQUIRED</b>	1 Flexion and extension of the atlanto occipital joint	
	2 Rotation of the atlanto-axial joint	2 of 2 to pass
<b>PROMPTS</b>		

TOPIC	QUESTION	ESSENTIAL KNOWLEDGE	NOTES
Question 1: Xray : lateral C spine	(a) Identify the major bony features of the cervical spine on this xray.  (b) Describe the ligaments which maintain alignment of the cervical spine.  Prompt: Which ligaments support the dens?	<b>Atlas</b> - Anterior and posterior arches <b>Axis –Dens</b> , spinous process C3-7: <b>Body</b> , pedicle, lamina, superior and inferior articular process, spinous process <b>Zygapophysial (facet) joint</b> Intervertebral disc space  <b>Anterior Longitudinal ligament</b> / Anterior atlanto-occipital membrane <b>Posterior longitudinal ligament</b> / Tectorial membrane Ligamentum flavum / Posterior atlanto-occipital membrane Interspinous ligaments Supraspinous/nuchal ligaments Intertransverse ligament <b>Transverse ligament of the atlas</b> Cruciate ligament Alar ligament	Bold to pass  Bold plus 2 others