

ACEM Primary Examination Vivas > Pathology > Environment	
Organised by edvivas.com	
Title	Page
Heroin 2003-2	2
Lead Poisoning 2006-2	3
Sudden Infant Death Syndrome 2012-1	4
Smoking 2003-2	5
Radiation 2003-2	6
Radiation 2006-2	7
Thermal Burns 2014-1-A	8
Thermal Burns 2011-2	9
Thiamine Deficiency 2006-2	10
Vitamin K Deficiency 2009-1	11



Heroin 2003-2

<p>2.5 Consequences of heroin</p>	<p>What are the major pathological consequences of IV drug abuse?</p> <p>What are the features of IVDU endocarditis?</p>	<p><b>Thrombo</b> phlebitis. <b>Sepsis</b> to injection site, lungs, heart valves, bones. <b>Viral inoculation</b> – Hepatitides, HIV; ARDS.</p> <p>10% of hospitalised addicts. Distinctive form involving <b>R valves</b>, esp. tricuspid; Most are <b>staph aureus</b>; fungi and a multitude of others do occur</p>	
---	--	---	--

Lead Poisoning 2006-2

**TOPIC:** Lead poisoning \_\_\_\_\_ **NUMBER:** \_\_\_\_\_

<b>OPENING QUESTION</b>	Describe the organ system effects of lead poisoning	3 systems with some details to pass
<b>POINTS REQUIRED</b>	1 CNS: encephalopathy including headache, dizziness, memory disturbance even coma, impaired CNS development in foetus and infants	
	2 PNS: peripheral neuropathy (impaired conduction)	
	3 Haematological: microcytic hypochromic anaemia, haemolysis, characteristic basophilic stippling of red cells	
	4 Renal: renal tubular injury	
	5 CVS: hypertension	
	6 Genitourinary: male infertility, failed ovum implantation	
<b>PROMPTS</b>	How does lead effect the CNS? What other systems does it effect?	
<b>SECOND QUESTION (optional)</b>	With regard to lead poisoning, what are the toxic mechanisms that operate?	<b>COMMENTS</b>
<b>POINTS REQUIRED</b>	1 High affinity for sulphhydryl groups: binds to gamma-aminilevuline acid dehydratase and ferroketolase, involved in heme synthesis	
	2 Competition with calcium ions: interferes with nerve transmission and brain development	
	3 Inhibition of membrane-associated enzymes including NA-K ion pumps	

Sudden Infant Death Syndrome 2012-1

<p>Question 5</p> <p>ALTE/SIDS</p> <p>LOA: 2</p>	<p><b>What is Sudden Infant Death Syndrome?</b></p> <p><b>What risk factors have been identified?</b></p>	<p><b>The sudden death of an infant under 1 year of age which remains unexplained after thorough investigation and autopsy.</b></p> <p>Parental risks- young mum &lt;20, maternal smoking or drug use, low SES, deficient pre-natal care</p> <p>Infant risks- premature, low BW, male, SIDS in sibling, brainstem anomalies.</p> <p>Environment- prone sleeping, soft bedding and co-sleeping, hyperthermia</p>	<p>Accurate definition (age &amp; unexplained nature)</p> <p><b>At least 3 risk factors</b></p>
--	---	---	---

Smoking 2003-2

1.5 Smoking on lungs	<p>By what mechanism does smoking contribute to emphysema?</p> <p>What cancers can smoking predispose to?</p>	<p>Emphysema is consequence of <b>high protease (elastase) activity with low anti-protease (elastase) activity</b>. Smoke – inc. neutrophils + macrophages in alveoli, - release of elastase from neutros, - enhanced elastolytic activity in macrophages, - inhibition of <b>alpha 1 AntiTrypsin</b> (oxidants in smoke, oxygen free radicals from neutros).</p> <p>Oropharynx, larynx, lung, oesophagus, stomach, pancreas, bladder</p>	3/
----------------------	---	---	----

Radiation 2003-2

3.5 Effects of acute radiation	Describe the effects of acute ionising radiation exposure on tissues.	<p>Sublethal doses → delayed effects: <b>mutations</b>, chromosome aberrations, genetic instability.</p> <p>Larger doses <b>kill proliferating cells</b> → haem, gut most prone; (clinical use vs proliferating cancer cells.). Vessel endothelial cell injury causes delayed organ dysfunction.</p> <p>Larger still – <b>overt tissue necrosis</b>.</p> <p>Delayed consequences include fibrosis – scarring when parenchymal cells cant regenerate, when vessels are damaged;</p> <p><b>Carcinogenesis</b> – skin, leukemia, osteogenic sarcomas, lung ca.; thyroid ca in children</p>	
--------------------------------	---	---	--

Radiation 2006-2

TOPIC: Manifestations of radiation injury \_\_\_\_\_ NUMBER: \_\_\_\_\_

<b>OPENING QUESTION</b>	Describe the clinical features of acute radiation syndrome.	<b>COMMENTS</b>
<b>POINTS REQUIRED</b>	1 Features are dose-dependent	Must describe increasing effect on bone marrow with dose to pass
	2 < 200 rem: Subclinical: mild N & V, minor neutropenia	Must be aware that it is universally fatal at high doses
	3 200-600 rem: Haematopoietic: N & V, neutropenia max. at 2 wks, risk of infection	
	4 600-1000 rem: Gastrointestinal: N, V and diarrhoea, severe neutropenia, death from shock and infection within 2 weeks	
	5 > 1000 rem: CNS: Severe N & V, coma within 3 hours, no lymphocytes, death within 36 hours	
<b>PROMPTS</b>	How do the clinical features of acute radiation injury change with increasing dose?	
<b>SECOND QUESTION (if needed)</b>	Describe some of the delayed effects of radiation injury.	Must get carcinogenesis plus effects on at least 3 other systems
<b>POINTS REQUIRED</b>	1 Carcinogenesis: esp leukaemias and thyroid ca in children	
	2 Blood vessels: fibrosis, narrowing – leads to organ ischaemia	
	3 Skin: radiation dermatitis, impaired healing	
	4 Heart: pericardial fibrosis leading to constrictive pericarditis	
	5 Lungs: radiation pneumonitis with intraalveolar and institial fibrosis	
	6 Kidneys and urinary tract: Peritubular fibrosis, loss of glomeruli, bladder fibrosis	
	7 GIT: oesophagitis, gastritis, enteritis, colitis, proctitis, fibrosis leading to strictures and obstruction	
	8 Breast: fibrosis	
	9 Ovary and testis: fibrosis and infertility	
	10 Eyes: cataracts	
	11 CNS: transverse myelitis	
<b>PROMPTS</b>		



Thermal Burns 2014-1-A

Stem: We are now moving to Pathology			
<b>Question 2</b> Thermal Injury (Robbins pp 421-422)  <b>Subject:</b> Path <b>LOA:</b> 1	How are thermal burns classified?	According to depth of injury: <ul style="list-style-type: none"> <li>• <b>Superficial</b> – confined to epidermis</li> <li>• <b>Partial thickness</b> – extends to dermis</li> <li>• <b>Full thickness</b> – involves subcutaneous tissue</li> </ul>	Bold required
	What are the potential complications of thermal burns?	<b>Early:</b> <ul style="list-style-type: none"> <li>• Hypovolaemic shock (especially with &gt;20% BSA)</li> <li>• Compartment syndrome (circumferential LL burn)</li> <li>• Associated injuries (eg inhalational burn, CO poisoning)</li> <li>• Airway compromise</li> <li>• Hypermetabolic state</li> </ul> <b>Late:</b> <ul style="list-style-type: none"> <li>• Infection / sepsis (Pseudomonas)</li> <li>• ARDS</li> <li>• Multi organ failure</li> <li>• Skin grafting, scarring / cosmetic</li> <li>• Psychological</li> </ul>	2 early and 2 late
	How do you determine the extent of burns?	TBSA calculation notoriously inaccurate. Does not include superficial burns <ul style="list-style-type: none"> <li>• Wallace “rule of nines”/Lund &amp; Browder diagram</li> </ul>	Mention 1 method



Thermal Burns 2011-2

<p>Question 5 Thermal injury LOA: 2</p>	<p>How are thermal burns classified? ( Prompt as to morphological depth classification?)</p> <p>What are the complications of a thermal burn?</p> <p>(Prompt for late)</p>	<p><b>Superficial</b>-confined to epidermis  <b>Partial thickness</b>-involves dermis  <b>Full thickness</b>-extend to the subcutaneous tissue</p> <p><b>Early vs late</b>  <b>Early-hypovolaemic shock</b> with &gt;20% BSA, pain, inhalational lung injury + airway oedema  <b>Late- sepsis</b> (pseudomonas), MSOF, acute lung injury, scarring, cosmetic deformity, psychological</p>	<p><b>Bold</b></p> <p>Need 2 early &amp; 2 late complication to pass</p>
---	--	---	--

Thiamine Deficiency 2006-2

**TOPIC:** Thiamine deficiency \_\_\_\_\_ **NUMBER:** \_\_\_\_\_

<b>OPENING QUESTION</b>	What are the pathological consequences of thiamine deficiency?	2 consequences with some details to pass
<b>POINTS REQUIRED</b>	1 Polyneuropathy (Dry beriberi): -symmetric peripheral polyneuropathy -myelin degeneration leading to axonal disruption in motor and sensory fibres, and reflex arcs	
	2 Cardiovascular consequences (Wet beriberi) - peripheral vasodilation - AV shunting - High output failure - Cardiac chambers may dilate	
	3 Wernicke-Korsakoff syndrome - Wernicke's: ophthalmoplegia, nystagmus, ataxia, higher centre dysfunction - Korsakoff's: permanent impairment of remote recall, confabulation	
<b>PROMPTS</b>	Can you name any syndromes associated with thiamine deficiency? Prompt for omitted syndromes	
<b>SECOND QUESTION</b>	In what areas of the CNS are lesions observed in Wernicke-Korsakoff's?	Name at least one site
<b>POINTS REQUIRED</b>	1 Mamillary bodies	
	2 Periventricular region of thalamus	
	3 Floor 4 <sup>th</sup> ventricle	
	4 Anterior cerebellum	
<b>PROMPTS</b>		

