

Syllabus	NA_IK_02, NA_IK_07, PB_IK_26
Topic	Prone position and anaesthesia

**a)**

List 4 procedures for which the prone position is indicated (4 marks)

- 1) .....
- 2) .....
- 3) .....
- 4) .....

**b)**

What is the minimum number of staff required to prone a patient? (1 mark)

.....

**c)**

List 4 physiological changes seen when turning a patient prone (4 marks)

- 1) .....
- 2) .....
- 3) .....
- 4) .....

**d)**

List 3 complications of the prone position and for each, 2 ways you can minimize the complication. (9 marks)

1) Complication: .....

How it can be minimized:

a) .....

b) .....

2) Complication: .....

How it can be minimized:

a) .....

b) .....

3) Complication: .....

How it can be minimized:

a) .....

b) .....

**e)**

Describe 2 differences between somatosensory evoked potentials (SSEPs) and motor evoked potentials (MEPs), which are often used for spinal cord monitoring in major back surgery. (2marks)

1) .....

2) .....

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	Answer	Mark	Guidance
a)	<p><u>Facilitate surgical access to posterior structures:</u></p> <ul style="list-style-type: none"> <li>• Back surgery (e.g. Scoliosis correction)</li> <li>• Posterior fossa surgery</li> <li>• Cervical spine surgery</li> <li>• Laparoscopic-assisted oesophagectomies</li> </ul> <p><u>Management of severe ARDS</u></p>	1 mark for each (Max. 4 marks)	
b)	<ul style="list-style-type: none"> <li>• 6 people</li> </ul>	1	
c)	<p><u>Cardiovascular</u></p> <ul style="list-style-type: none"> <li>• Blood pooling causes a reduction in preload</li> <li>• Caval compression causes a reduction in preload</li> <li>• Positive pressure ventilation reduces preload</li> </ul> <p><u>Respiratory</u></p> <ul style="list-style-type: none"> <li>• FRC improved (heart displaced and diaphragmatic excursion impeded by abdominal contents)</li> <li>• V/Q mismatching is improved as the heart is displaced by gravity – less lung is compressed</li> </ul> <p><u>Neurological</u></p> <ul style="list-style-type: none"> <li>• Rotated head position/over flexion or extension of the neck will cause compression of the arteries and venous drainage – reduction in cerebral blood flow and increased ICP</li> </ul>	1 mark for each (Max. 4 marks)	

<p><b>d)</b></p>	<p><u>Postoperative visual loss (secondary to ischaemic optic atrophy or central retinal artery occlusion)</u></p> <ul style="list-style-type: none"> <li>• Ensure that eyes are not compressed by headrest</li> <li>• Check eyes every 30 mins</li> <li>• Optimise BP</li> <li>• Optimise oxygenation</li> </ul> <p><u>Intra-abdominal organ ischaemia (compromised blood flow to e.g. liver/pancreas)</u></p> <ul style="list-style-type: none"> <li>• Ensure careful positioning</li> <li>• If signs of acidosis, check LFTs</li> <li>• Turn supine if LFTs abnormal</li> </ul> <p><u>Pressure injuries (skin necrosis, tracheal compression, pinna, genitals)</u></p> <ul style="list-style-type: none"> <li>• Careful positioning and padding of areas</li> <li>• Careful examination of skin and vulnerable areas prior to positioning</li> <li>• Ensure BP is maintained to prevent ischaemia at pressure points</li> </ul> <ul style="list-style-type: none"> <li>• <u>Peripheral nerve injury (Common peroneal, brachial plexus, all peripheral nerves are at risk)</u></li> <li>• Place arms by the side to protect brachial plexus and ulnar nerve</li> <li>• Ensure careful positioning and padding of legs when strapped</li> <li>• If arms abducted, no more than 90 degrees flexion at shoulder and elbow</li> </ul>	<p>1 mark for each complication with 1 mark for each associated method to minimise the complication (Max. 9 marks)</p>	
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e)	<p><u>Somatosensory evoked potentials</u></p> <ul style="list-style-type: none"> <li>• Smaller amplitude</li> <li>• Measured over sensory cortex or via epidural electrodes. Stimuli applied to posterior tibial nerves</li> <li>• Transmitted by posterior column; supplied by posterior spinal arteries</li> </ul> <p><u>Motor evoked potentials</u></p> <ul style="list-style-type: none"> <li>• Constant stimuli applied to motor cortex</li> <li>• Measured with needles in tibialis anterior, abductor hallucinate and cactus medialis</li> <li>• Corticospinal tract; anterior spinal artery</li> <li>• Unable to use muscle relaxant</li> <li>• Results are affected by volatile anaesthetic agents</li> <li>• Results may be affected by propofol</li> </ul>	<p>1 mark for each (Max. 2 marks)</p>	<p><i>Note: They are not affected by therapeutic levels of volatile anaesthetic agents.</i></p> <p><i>(Dose dependent - therefore use depth of anaesthesia monitoring )</i></p>
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### References

- 1) Feix B, Sturgess J. Anaesthesia in the prone position. CEACCP (2014) 14(6)291-297  
<https://academic.oup.com/bjaed/article/14/6/291/247907>
- 2) Nowicki RWA. Anaesthesia for major spinal surgery. CEACCP (2014) 14(4)147–152  
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