

Syllabus	
Topic	Off-pump CABG

**a)**  
Give 6 theoretical advantages of “off pump” coronary artery bypass grafting (OPCABG) compared with “on pump” grafting. (6 marks)

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....

**b)**  
What activated clotting time is required for i) On Pump and ii) Off Pump CABG? (2 marks)

- On Pump: .....
- Off Pump: .....

**c)**  
Give 5 causes of haemodynamic instability during “off pump” coronary artery bypass grafting (5 marks)

1. ....
2. ....
3. ....
4. ....
5. ....

**d)**

Give 7 ways to minimise such instability during “off pump” coronary artery bypass grafting (7 marks)

1. ....

2. ....

3. ....

4. ....

5. ....

6. ....

7. ....

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Q	Answer	Mark	Guidance
a)	<p>Avoids complications of CPB:</p> <ul style="list-style-type: none"> <li>• SIRS</li> <li>• Platelet dysfunction</li> <li>• Cognitive impairment/stroke</li> <li>• Consumption of clotting factors</li> <li>• Accelerated fibrinolysis</li> <li>• Renal impairment</li> <li>• ARDS</li> <li>• Bleeding from cannula site</li> <li>• Volume overload from circuit volume</li> <li>• Air emboli</li> </ul> <p>Avoids complications of cross clamp</p> <ul style="list-style-type: none"> <li>• Embolic events/stroke/vessel injury</li> </ul> <p>Reduced length of ICU stay/earlier extubation</p> <p>Less transfusion</p>	6	
b)	<p>On pump: &gt;480s or 4x baseline</p> <p>Off pump: 250-300s</p>	1 1	
c)	<ul style="list-style-type: none"> <li>• Arrhythmia due to manipulation, ischaemia or reperfusion</li> <li>• Ischaemia from vessel anastomosis</li> <li>• Haemorrhage</li> <li>• Deep anaesthesia/low SVR</li> <li>• Surgical compression of great vessels/IVC/SVC</li> <li>• Stabilizers/octopus causing RWMA/impaired filling</li> <li>• Displacement of heart to operate on posterior and lateral wall</li> <li>• Vertical placement of heart leading to mitral and tricuspid regurgitation (annular distortion)</li> </ul>	5	

d)	<ul style="list-style-type: none"><li>• Good communication between anaesthetist and surgeon</li><li>• Adequate filling/preload</li><li>• Maintain contractility/inotropic support</li><li>• Monitor and correct electrolytes to avoid arrhythmia</li><li>• Avoid over anaesthetising with use of BIS</li><li>• Ischaemic preconditioning by surgeons prior to grafting</li><li>• Use of shunts to minimise ischaemia</li><li>• Minimise mechanical displacement of heart/manipulation of heart</li><li>• Avoid hypothermia</li><li>• Avoid acidosis</li><li>• Pace if bradycardia is the cause for instability</li></ul>	7	
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References: