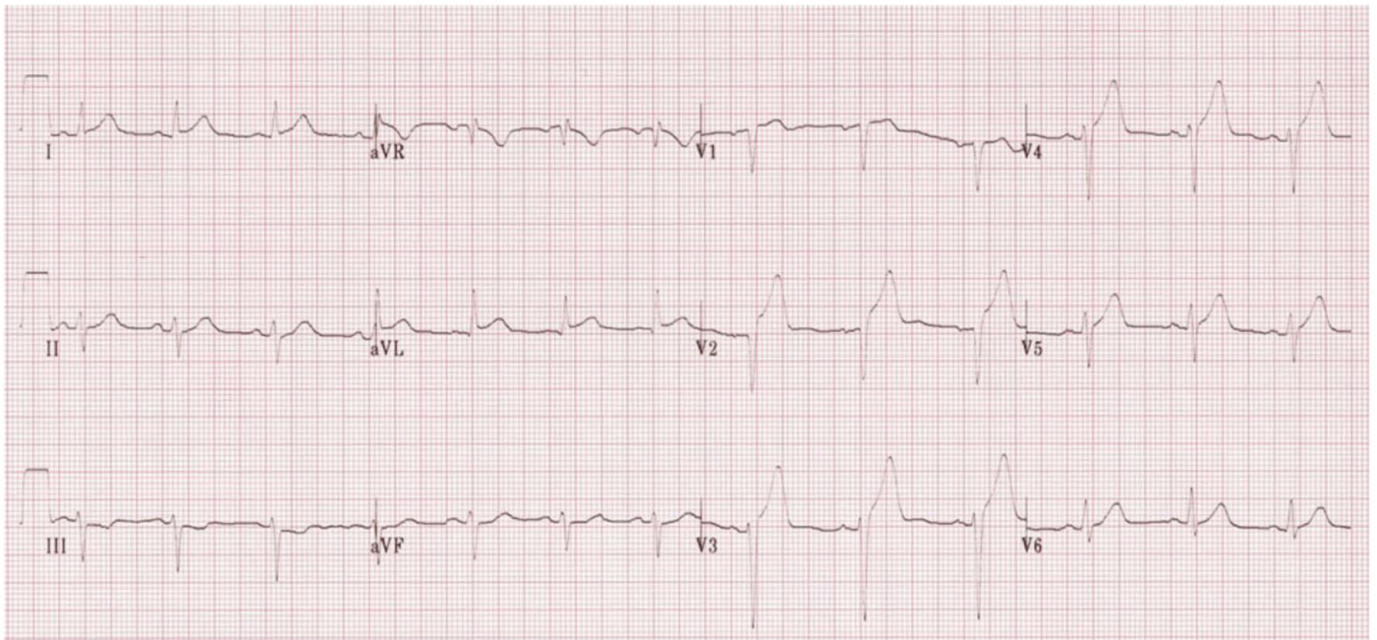


Syllabus	CT_IK_03, CT_IK_04, CT_IK_06, PB_IK_01, PCM_IS_17
Topic	Acute coronary syndrome



**a)**  
 What abnormalities are seen in the ECG shown? (2 marks)

.....

.....

**b)**  
 In which territory/region of the heart is ST elevation maximal? (1 mark)

.....

**c)**  
 What are the 2 ECG changes that qualify as a ST-elevation myocardial infarction (STEMI)? (2 marks)

1. ....
2. ....

**d)**

List 3 modifiable risk factors for acute coronary syndromes (ACS). (3 marks)

1. ....
2. ....
3. ....

**e)**

List 3 non-modifiable risk factors for ACS. (3 marks)

1. ....
2. ....
3. ....

**f)**

Complete the table of the drugs used in the management of ACS. (6 marks)

Drug	Mechanism of action	Example
COX inhibitor	Irreversibly prevents thromboxane A <sub>2</sub> production in platelets	Aspirin
Nitrate	Vasodilator via nitric oxide. Reduces cardiac preload and LVEDV (decreasing myocardial O <sub>2</sub> demand); vasodilates coronary arteries	Glyceryl trinitrate
Beta blocker	Reduced chronograph and inotrope (decreasing myocardial O <sub>2</sub> demand)	.....
.....	Irreversible - prevents platelet aggregation by preventing ADP binding	Clopidogrel
Glycoproteins IIb/IIIa inhibitor	.....	.....
.....	Can be direct or indirect. Given to all NSTEMI-ACS patients without high bleeding risk if not undergoing PCI in 24h	.....

**g)**

List 3 physiological risk factors for perioperative MI. (3 marks)

1. ....

2. ....

3. ....

Syllabus	CT_IK_03, CT_IK_04, CT_IK_06, PB_IK_01, PCM_IS_17
Topic	Acute coronary syndrome

Q	Answer	Mark	Guidance
a)	<ul style="list-style-type: none"> <li>• ST elevation in V<sub>1</sub> - V<sub>4</sub></li> <li>• Q waves in V<sub>1</sub> - V<sub>2</sub></li> <li>• ST elevation I, aVL and V5</li> <li>• Reciprocal ST depression lead III</li> </ul>	2 marks	Must have ST elevation in V <sub>1</sub> - V <sub>4</sub> to gain any marks.
b)	<ul style="list-style-type: none"> <li>• Anterioseptal MI</li> </ul>	1	
c)	<ul style="list-style-type: none"> <li>• &gt;1mm in 2 consecutive limb leads</li> <li>• &gt;2mm in 2 consecutive chest leads</li> </ul>	1 1	
d)	<ul style="list-style-type: none"> <li>• Hypertension</li> <li>• Smoking</li> <li>• Diabetes</li> <li>• Obesity</li> <li>• Sedentary lifestyle</li> <li>• Increased LDL</li> </ul>	3 marks	
e)	<ul style="list-style-type: none"> <li>• Increased age</li> <li>• Family history</li> <li>• Males</li> <li>• Premature menopause</li> <li>• Ethnicity</li> </ul>	3 marks	
f)	<p><u>COX inhibitor</u></p> <ul style="list-style-type: none"> <li>• Irreversibly prevents thromboxane A<sub>2</sub> production in platelets</li> <li>• Aspirin</li> </ul> <p><u>Nitrate</u></p> <ul style="list-style-type: none"> <li>• Vasodilator via nitric oxide. Reduces cardiac preload and LVEDV (decreasing myocardial O<sub>2</sub> demand); vasodilates coronary arteries</li> <li>• Glyceryl trinitrate</li> </ul> <p><u>Beta blocker</u></p> <ul style="list-style-type: none"> <li>• Reduced chronograph and inotrope (decreasing myocardial O<sub>2</sub> demand)</li> <li>• <b>Metoprolol, bisoprolol</b></li> </ul> <p><u>P2Y<sub>12</sub> inhibitor</u></p> <ul style="list-style-type: none"> <li>• Irreversible - prevents platelet aggregation by preventing ADP binding</li> <li>• Clopidogrel</li> </ul>	1  1	

	<p><u>Glycoproteins IIb/IIIa inhibitor</u></p> <ul style="list-style-type: none"> <li>• <b>Inhibits platelet aggregation by inhibiting platelet crosslinking</b></li> <li>• <b>Tirofiban, eptifibatide or abciximab</b></li> </ul> <p><u>Antithrombin therapy</u></p> <ul style="list-style-type: none"> <li>• Can be direct or indirect. Given to all NSTEMI-ACS patients without high bleeding risk if not undergoing PCI in 24h</li> <li>• <b>Fondaparinux, unfractionated heparin or bivalirudin</b></li> </ul>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	
g)	<ul style="list-style-type: none"> <li>• Anaemia</li> <li>• Hypothermia</li> <li>• Pain</li> <li>• Hypercarbia</li> <li>• <b>Increased O2 demand:</b> All increase catecholamine and cortisol → tachycardia, hypertension → extra shear stress and plaque rupture</li> <li>• Decreased O2 supply</li> </ul>	<p>3 marks</p>	<p>(Accept sepsis, critical illness)</p> <p>(Accept hypoxia)</p>

References:

- 1) Reed-Poysden C, Gupta KJ. Acute coronary syndromes. (2015) BJA Education 15(6)286-293 <https://academic.oup.com/bjaed/article/15/6/286/356371>