Syllabus	PB_IK_07, PR_IK_05, CT_IK_16
Topic	Pulmonary hypertension

A 44 year old man is referred by the medical team for consideration of critical care. He is known to have pulmonary hypertension and has presented with increasing exertional dyspnoea and pre-syncopal episodes precipitated by lower limb cellulitis.

a)
What is the definition of pulmonary hypertension? (2 marks)

………

………

b)
Current World Health Organisation (WHO) classification describes five main groups of pulmonary hypertension. List the remaining three groups. (3 marks)

1. Pulmonary artery hypertension/idiopathic pulmonary hypertension

2. ……

3. ……

4. ……

5. Miscellaneous due to haematological disorders, systemic disorders (i.e. sarcoidosis) and metabolic disorders

c)
List 3 clinical <u>signs</u> you may identify when examining a patient with pulmonary hypertension? (3 marks)

1. ……….

2. ……..

3. ………

d)

List 3 ECG findings seen above that are typical of pulmonary hypertension? (3 marks)

1. ………

2. ………

3. ………

e)

The patient is admitted to critical care. He has deteriorated and it is decided he needs further drug management of his pulmonary hypertension. Complete the table below of potential therapies used in the acute management of right ventricular failure/pulmonary hypertension on critical care. (5 marks)

Therapy	Mechanism of action	Predominant Effect
Dobutamine	…………………………………………… ……………………………………………	………………………………………… …………………………………………
…………………………………	Phosphodiesterase-3-inhibitor	Vasodilation to reduce RV afterload
Noradrenaline	…………………………………………… ……………………………………………	………………………………………… …………………………………………
…………………………………	Given nebulised, increases intracellular levels of c-GMP by activating guanylate cyclase	Pulmonary vasodilator to reduce RV afterload

f)

One of the principles of critical care management in the acutely unwell patient with pulmonary hypertension is treatment of the underlying cause for deterioration. List 3 possible precipitating factors for clinical deterioration in someone with pulmonary hypertension. (3 marks)

1. ……….

2. ……….

3. ……….

g)

Despite instigating appropriate measures, the patient continues to deteriorate. What other intervention could be considered? (1 mark)

……

	Syllabus	PB_IK_07, PR_IK_05, CT_IK_16
	Topic	Pulmonary hypertension

Q	Answer	Mark	Guidance
a)	• Mean pulmonary artery pressure of 25mmHg or greater	1	
	• Measured at right heart catheterisation/PA catheter	1	Diagnostic gold standard for PH
b)	1. *Given already* 2. Due to left heart disease 3. Due to lung disease or chronic hypoxia 4. Caused by pulmonary thromboemboli 5. *Given already*	3	1 mark for each group
c)	• Raised jugular venous pressure • Peripheral oedema • Loud P2 • Right ventricular heave • Hepatomegaly • Irregular heart rate/atrial flutter	Any 3	
d)	• Right axis deviation • RV strain pattern/anterior and inferior T wave inversion • Right bundle branch block • P pulmonale • Dominant R wave in V1	Any 3	
e)	<u>Therapy: Dobutamine</u> • Mechanism of action: beta-1 agonist • Predominant effect: positive inotropy of right ventricle/improves RV contractility <u>Therapy: Enoximone or milrinone</u> <u>Therapy: Noradrenaline</u> • Mechanism of action: alpha-1 agonist • Predominant effect: augments SVR/causes peripheral vasoconstriction/maintains systemic blood pressure <u>Therapy: Nitric oxide</u>	1 1 1/2 1 1 1/2	 Either drug for mark (also has some beta-1 agonism + inotropic properties but not predominant effect)

f)	• Cardiac arrhythmia • Infection/sepsis • Anaemia • Thromboembolism • Pericardial effusion • Metabolic abnormalities • Exacerbation of coexisting chronic conditions	Any 3	
g)	• Extracorporeal membrane oxygenation (ECMO)	1	(Also urgent lung transplant)

References:

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2) Akuji, Martin, Chambers, Thomas. CRQs for the Final FRCA

3) Combeer E. The Final FRCA Short Answer Questions