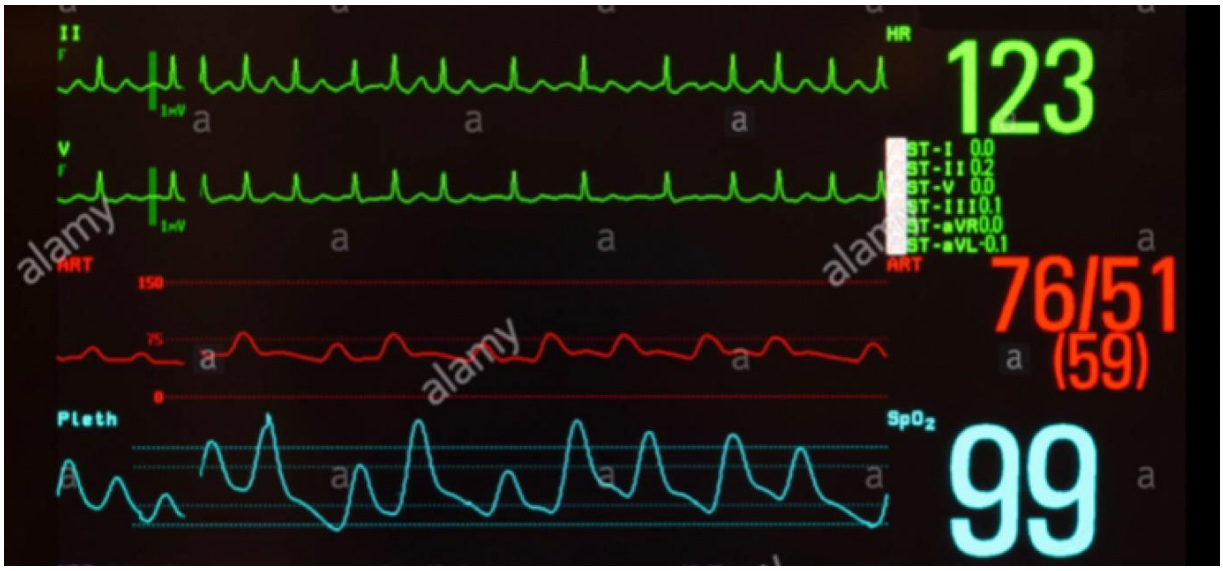
Another example – with model answers

Domain: 1 Resuscitation & Initial Management of the acutely ill patient **Learning outcomes:** Cardiac arrhythmias and the principles of their management (treatment algorithm): Atrial fibrillation **Aim of question:** Test FJFICMI candidates' knowledge and ability to manage FAF in the peri-arrest setting.

You are called to review a 56-year-old woman who was admitted to ICU with septic shock following a perforated sigmoid colon. She had an emergency Hartmann's procedure 24 hours ago and had been stable up until now. She is intubated and ventilated.

a) **On arrival at the patient's bedside, the nurse reports that her heart rate has suddenly increased, and her blood pressure has acutely decreased. Her monitor image is provided. Describe the abnormalities observed. [2 marks]**



Q	Answer	Total marks	Notes
a	• Fast atrial fibrillation - rate 123bpm • Adverse feature - hypotension	1 1	

b) What are the common causes of this arrhythmia in ICU? [5 marks]

Q	Answer	Total marks	Notes
b	• Hypovolaemia • Sepsis • Metabolic disturbance (hypokalaemia/hypomagnesaemia) • Hypoxia • Myocardial ischaemia • PE	**1 mark each**	To a maximum of 5 marks. Allow other acceptable causes of AF.

c. Outline your immediate management of this patient given her physiological observations. [9 marks]

Q	Answer	Total marks	Notes
c	This patient is haemodynamically compromised. 1. Increase FiO2 to 1.0 2. Call for senior help 3. Attach defibrillation pads 4. Ensure patient adequately sedated and administer a synchronized DC shock e.g., 150J. 5. If this does not work, the energy can be increased again e.g., to 200J, and a further synchronised DC shock administered. 6. After 3 shocks, if no success, administer amiodarone 300mg over 20 mins. 7. Following amiodarone administration, further synchronised shocks can be given if remains unstable. 8. Investigate to identify the underlying cause - send U& E, calcium, phosphate, magnesium, troponin etc and treat accordingly. 9. 12-lead ECG 10. Treat underlying cause - e.g., sepsis with antibiotics, hypovolaemia with IV fluids, and correct electrolyte abnormalities. 11. Hypotension could be supported by crystalloid fluid challenge or vasopressor infusion.	**1 mark each**	To a maximum of 9 marks.

d) List five potential consequences of this arrhythmia. [5 marks]

Q	Answer	Total marks	Notes
d	• Immediate haemodynamic instability • Myocardial ischaemia: "rate-related ischaemia" which may present with bundle-branch block and look similar to VT • Associated with a longer ICU LoS and a higher risk of ICU mortality (probably associated with more severe critical illness) • Higher incidence of post-ICU AF and of ischaemic stroke in 5 years after diagnosis • Higher incidence of a thromboembolic event prior to hospital discharge • Persistent AF: uncommon as arrhythmia usually resolves with illness management and antiarrhythmics. • Risk of refractory AF increases with the duration of AF episode (i.e., treat early)	**1 mark each**	To a maximum of 5 marks.

e) **Following successful cardioversion back to sinus rhythm, the patient remains significantly hypotensive. What parameters may be derived from arterial pulse contour analysis? [4 marks]**

Q	Answer	Total marks	Notes
e	• Cardiac output • Cardiac index (cardiac output adjusted for body size) • Heart rate • Stroke volume variation (an indicator of fluid responsiveness)	**1 mark each**	To a maximum of 4 marks.