You are working as the duty consultant at a tertiary trauma centre when a 26-year-old man is brought in following a suicide attempt. He jumped in front of an oncoming train, which ran over his right arm, leaving the rest of him largely unscathed. Extrication from the scene was prolonged.

On arrival the patient is agitated and in significant pain. His current vital signs are:

GCS 13 (E3 V4 M6)
HR 130
SBP 100/80
RR 24
SaO2 100% RA
T34.7

This is a photo of the affected limb.

a) List four (4) hard signs of peripheral arterial injury. (4 marks)

Any four of:
Absent or diminished distal pulses
Pulsatile arterial bleeding
Large expanding or pulsatile haematoma
Palpable thrill over vessel
Audible bruit over vessel

Visualised damaged vessel / anatomical transection, amputation
Frank distal limb ischaemia (white, absent CR)

(ref. Tintanelli chapter 266 – Trauma to the extremities)

b) Other than parenteral opioids, state two (2) options for immediate pain management.
(2 marks)

Any of:
Ketamine IV at analgesic doses (0.1-0.3mg/kg) (less good but ok IM or IN with reasonable doses).
Intubation with sedative and analgesic infusions.
Reduction, hard board, or practical description of limb immobilisation.
Sensible regional approach e.g., axillary BP, supraclavicular, infraclavicular blocks.

Not given: Nitrous, opiates or simple analgesics with impractical or inadequate effects.

3) State your ongoing management priorities in the emergent care of this patient.
(6 marks)

Inclusive of six unique conceptual points and appropriate detail:

- Haemostatic resuscitation with warmed blood products, ratio 1:1:1, and reasonable end points (shock index <1, or permissive hypotension strategy).
- Intubation, with avoidance of hypotension (eg. IV ketamine 1mg/kg) – many reasons eg. behavioural control / agitation / sedation, analgesia generally and for limb reduction, facilitate subsequent invasive procedures, inevitable OR disposition, early situational control.
- Active warming with forced warmed air blanket aiming core temp >35C.
- Urgent surgical team attendance to expedite theatre for definitive operative management (vascular, ortho, plastics).
- Infection prevention with IV cephazolin 2g and ADT.
- Manage life-threatening hyperkalaemia following crush injury; IV calcium gluconate, insulin-dextrose, maintenance of UO.
- Wound management including limb splinting, sterile saline lavage, haemostatic dressings.

Not paid: repeating steps already done, psychiatric involvement far too early, or utilisation of AO when patient in fact critically injured / un-assessable within 24hrs / medically altered, persisting with patient un-intubated despite shock, agitation, psychiatric status, painful torniquet use, need for further imaging, and overall trajectory…