Formulating X-Ray Techniques Assignment

Which factor is the primary controller of x-ray beam penetration?

If the image is too dark (overexposed), which adjustment is most appropriate first?

When patient thickness increases, to maintain receptor exposure, the technologist should:

Which rule states that a 15% increase in kVp is approximately equal to doubling the mAs in terms of receptor exposure?

For an abdominal radiograph, the technologist uses 80 kVp at 20 mAs at 40" SID. If the exam is repeated at 60" SID, what new mAs will maintain exposure (using the inverse square law)?

A grid is added to a chest radiograph technique that was 90 kVp at 4 mAs (non-grid). Assuming a 5:1 grid with a conversion factor of 2, the new mAs should be:

Which factor is the primary controller of image contrast in radiography?

Doubling the SID will change exposure at the receptor by:

For small extremities (hand/finger), which exposure factor set is MOST appropriate?

Which adjustment best reduces motion blur on an image?

Why is mAs adjusted for patient size more commonly than kVp?

Explain why kVp influences both contrast and patient dose.

What is the purpose of a technique chart in radiography?

Why should grids not be used for thin body parts?

How does using AEC (automatic exposure control) help standardize technique?

A lateral lumbar spine radiograph is taken at 80 kVp, 40 mAs, at 40" SID. If the SID is increased to 56", what new mAs should be used to maintain exposure? *(Use inverse square law)*

An AP chest was taken at 120 kVp, 2 mAs, non-grid. The physician requests a repeat with an 8:1 grid (conversion factor 4). What new mAs is needed?

Abdomen (average): 80 kVp @ 25 mAs
Your patient is much smaller than average. Which adjustment is preferable?

- (a) Lower kVp
- (b) Reduce mAs
- (c) Increase SID
- (d) Add filtration

A hand x-ray is taken at 60 kVp, 2 mAs, at 40” SID. The image is underexposed. Which single adjustment is best: increase kVp to 70, or increase mAs to 4? Explain.

A portable chest requires 72” SID but your technique chart lists 90 kVp at 2 mAs for 40” SID. Calculate the new mAs for 72” SID.