ASNT Level III Study Guide: Radiographic Testing Method second edition

Text Corrections

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The following text corrections apply to the second printing of *ASNT Level III Study Guide: Radiographic Testing Method second edition*. Subsequent printings of the document will incorporate the corrections into the published text.

Page 3:
The first sentence in the second paragraph under *Activity* should read:
> Thus 1Bq = <u>1 disintegration per second</u>.

Page 6:

Question 1.2 answer b. should read: $\dfrac{I_1}{D_2^2} = \dfrac{I_2}{D_1^2}$

Question 1.9 should read:
> The reduction in the energy of photons when they are scattered by ~~free~~ electrons which thereby gain energy is called:

Page 7:
Question 1.17 should be deleted.

Page 8:
For clarification, Question 1.21 should be changed as follows:
1.21 The liberation of electrons from a **substance exposed to electromagnetic radiation** is called:
>   a.   the photoelectric effect.
>   b.   compton scattering.
>   c.   pair production.
>   d.   ~~None of the above~~. <u>half-life</u>.

The correct answer remains a.

Page 10:
In the right-hand column, under Example B, the second bulleted text should be changed to read:
*   Average <u>148 GBq</u> • min (4 Ci • min) per exposure. Therefore the projected workload is <u>59 200 GBq</u> • min (1600 Ci • min) per week.

Page 12:
Question 2.5 answer b. should be changed to: <u>10.2 cm</u>.
Question 2.6 answers should be changed as indicated:
>   a.   34 600 mA • min per week
>   b.   7 850 mA • min per week
>   c.   17 850 mA • min per week
>   d.   2550 mA • min per day
>   e.   71 400 mA • min per month

Page 13:
The first sentence in the second paragraph should read:
> To acquire the energies necessary for industrial radiography, the electrons must experience an accelerating voltage from about 30 kV to 30 <u>MeV</u>.

Page 17:
In the left-hand column, under the heading *Chemical Form*, the following edits should be made:
> The radioactive material is in the form of metal pellets <u>or wafers</u> ~~whenever possible~~. This is particularly true for cobalt and iridium. ...
> Each pellet produces about 185 GBq (5 Ci) after neutron bombardment. Iridium is irradiated in 1 mm (0.04 in.) thick ~~pellets~~ <u>wafers</u> 2 or 3 mm (or 0.08 of 0.12 in.) in diameter, ...

Page 18:
Question 3.5 answer d. should read: <u>Ra-226</u>.

Page 34:
Question 4.13 should be deleted.

Page 36:
The second paragraph under *Unsharpness of a Radiograph* should be changed to read:
> Simple geometry shows the ratio of the target size *F* to the unsharpness *Ug* is equal to the ratio of the target to specimen distance ~~d~~ <u>D</u> to that of the object-to-film distance ~~D~~ <u>d</u>.

Page 40:
For clarification, Equation 18 should be rewritten:
$\alpha = (100/X)(TH/2)^{1/2}$

Page 43:
For clarification, Question 5.2, answer b., should be changed to:
b.   ~~catalysis~~. <u>oxidation</u>

The correct answer remains c.

Page 51:
For clarification, Question 6.2, answer d. should be changed to read:
> d.   producing the highest gamma when used with <u>thin</u> ~~heavy~~ metal filters.

The correct answer remains a.

Question 6.7 should be deleted.

Page 67:
The answer to Question 9.1 should be changed to <u>b</u>.

Page 74:
Equation 23 should be rewritten to read:

$$H_s = D - K = \frac{BT}{A+B} - K$$

Page 84:
For clarification, Question 10.16 should be changed to read:
> In high energy radiographic applications, screens vary depending on the energy used. When using an 8 MeV linear accelerator, which of the following thicknesses would be the ~~most appropriate~~ <u>maximum allowed</u> front screen thickness?

The correct answer remains a.

Page 102:
The answer to Question 13.7 should be <u>b</u>.

Page 106:
Item number 7 in the right-hand column should be edited to read:
7.   Surface finish may aid or hinder interpretation of ~~nonrelevant~~ indications.

Page 107:
For clarification, the answers to Question 14.1 should be rewritten to read:

> a.   <u>radiographic technique used.</u>
> b.   configuration and manufacturing variables.
> c.   <u>typical types of film artifacts.</u>
> d.   All the above.

The correct answer should be changed to <u>d</u>.