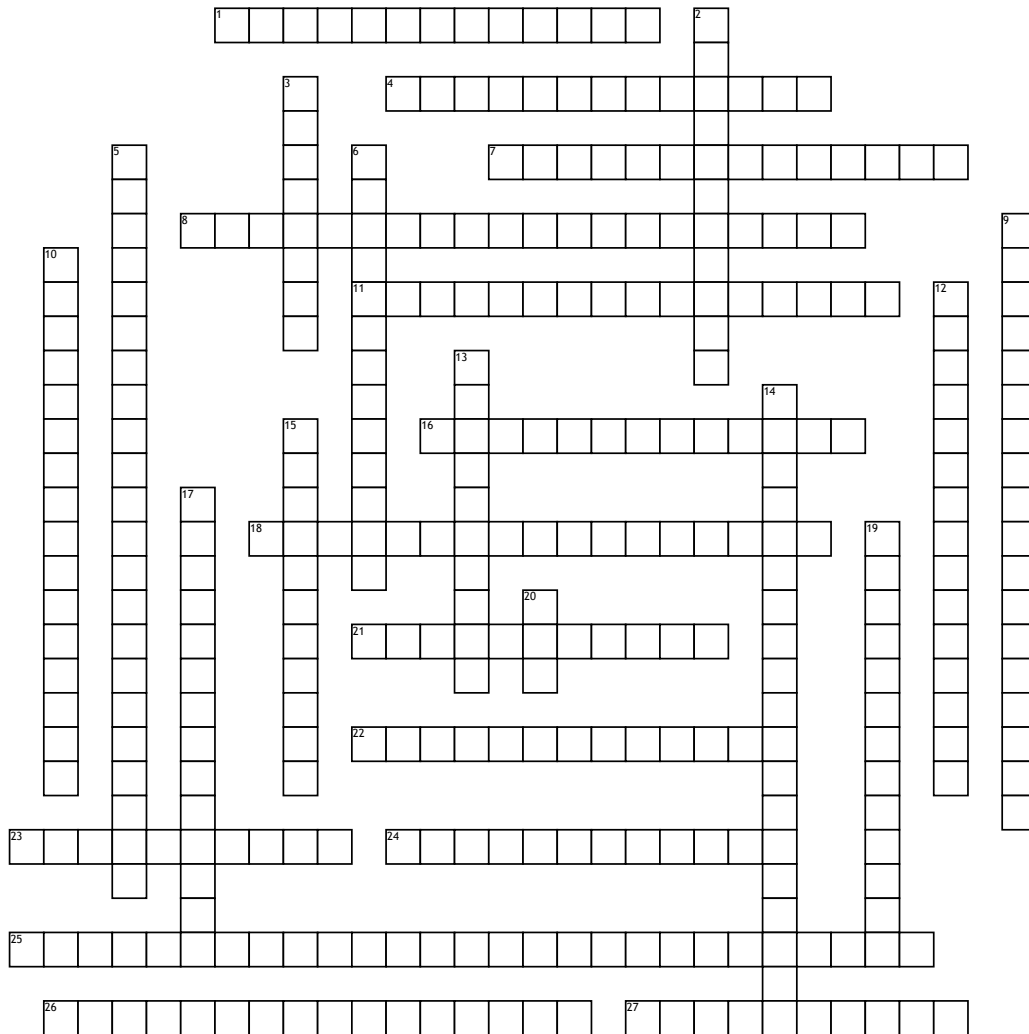


Name: _____

Date: _____

Ch. 8 Image Production



Across

1. Scattering that results from the loss of some energy of the incoming photon when it ejects an outer-shell electron from a tissue atom
4. The electron ejected from an atom during a photoelectric interaction
7. An expression of the ability of an image intensifier tube to convert x-ray energy into light energy and increase the brightness of the image in the process
8. During fluoroscopy, the process of creating a brighter visible image
11. The attenuated x-ray beam leaving the patient that is composed of both transmitted and scattered radiation; also called exit radiation
16. A layer of the image intensifier made of cesium iodide and bonded to the curved surface of the tube itself. It absorbs the remnant x-ray photon energy and emits light in response
18. The ejected electron resulting from Compton effect interaction
21. The use of continuous beam of x-rays to create dynamic images of internal structures that can be viewed on a display monitor
22. A device that receives the radiation leaving the patient

23. Those x-ray photons removed from the x-ray beam as a result of the uptake of their energy by body tissues

24. A layer of the image intensifier made of cesium and antimony compounds. These metals emit electrons in response to light stimulus

25. Negatively charged plates along the length of the image-intensifier tube that repel the electron stream, focusing it on the small output phosphor

26. An expression of luminance at the output phosphor divided by the input exposure rate; its unit of measure is the candela per square meter per milliroentgen per second

27. Incoming photons are not absorbed, but instead lose energy during interactions with the atoms composing the tissue

Down

2. Reduction in the energy or number of photons in the primary x-ray beam after it interacts with anatomic tissue

3. An expression of the ratio of the number of light photons at the output phosphor to the number of light photons emitted in the input phosphor; represents the tube's conversion efficiency

5. The difference between the x-ray photons that are absorbed photoelectrically versus those that penetrate the body

6. The attenuated x-ray beam leaves the patient and is composed of both transmitted and scattered radiation; also called remnant radiation

9. An interaction that occurs with low-energy x-rays, typically below the diagnostic range. The incoming photon interacts with the atom, causing it to become excited. The x-ray does not lose energy, but changes direction

10. An expression of the degree to which the image is minified (made smaller) from input phosphor to output phosphor

12. The electron ejected from an atom during a Compton scattering event

13. Removal of an electron from an atom

14. In the diagnostic range, the total absorption of the incident photon by ejecting an inner shell electron of a tissue atom

15. The invisible image that exists on the image receptor before it has been processed

17. A layer in the image intensifier that absorbs the electron stream and emits light in response

19. The visible radiographic image on the exposed film after processing

20. Unwanted exposure on the radiographic image that does not provide any diagnostic information

Word Bank

- | | | | |
|--------------------|-------------------------------|---------------------|----------------------|
| fog | Compton effect | fluoroscopy | photoelectric effect |
| secondary electron | differential absorption | brightness gain | manifest image |
| latent image | photocathode | ionization | absorption |
| flux gain | electrostatic focusing lenses | exit radiation | output phosphor |
| image receptor | photoelectron | input phosphor | Minification gain |
| Compton electron | attenuation | coherent scattering | remnant radiation |
| conversion factor | image intensification | scattering | |