

Specialized Topics in Areas of Radiologic Sciences
P.O. Box 2931 Toledo, Ohio 43606 419-471-1973
E-mail: info@xrayhomestudies.com
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Radiation Physics and Protection Series

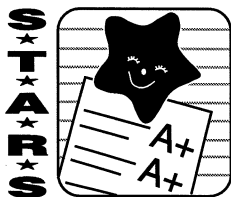
Units 1 – 12

DVD Format

Prepared by: Carolyn J. Frigmanski, M.A., B.S.R.T. ®

Founder, S.T.A.R.S.

**All post tests must be returned for the designated number of Ohio
Department of Health approved continuing education credits.**



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Welcome to your **S.T.A.R.S.** DVD self-learning product that has been approved for **12 continuing education credit hours** by the Ohio Department of Health for radiologic license requirements. You may complete these units by using the audio-visual format from the Presentation Menu on the DVD or by printing the hard copy from the Resources Menu on your DVD. The total module is approved for **12 CE credits**. You must complete the post test in each unit with your name, address and date (social security number is optional) with a 75% or better score to receive an original signed certificate of completion with the respective CE credit amount.

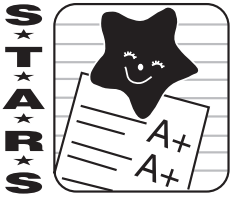
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Please submit the post tests to the **S.T.A.R.S.** office **BEFORE** your biennium ends to receive CE credit. Certificates of completion are prepared with the date your post tests are received and evaluated by **S.T.A.R.S.** officials.

Thank you very much for selecting this educational product to meet your professional needs.

Carolyn J. Frigmanski, M.A.,B.S.R.T.®
Founder



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Dear GXMO/LSO/LSR participant,

Welcome to your selected S.T.A.R.S. developed continuing education home study!

In the spring of 2013, The Ohio Department of Health (ODH) approved ALL of them for GXMO license renewal. Please check with your state licensing agency if you are not a licensed GXMO in Ohio to be sure your state accepts these ce credits for your state license renewal requirement.

This product consists of a text on a desired topic and multiple question, short answer post test(s) pages. The number of Ohio Department of Health approved continuing education (ce) credits is listed on our order form. This home study product was originally developed for radiographers across the country who were registered with the American Registry of Radiologic Technologists (ARRT) and approved by the American Society of Radiologic Technologists (ASRT). Please disregard any reference to the ASRT/ARRT within this product, if any.

You must complete the reading and questions with a **75% or higher score** on the post test(s) to get your approved CE credit!

Please return all the post test pages to the **S.T.A.R.S.** address listed on our letterhead **BEFORE** your license expires. We will forward your certificate of completion on the same day your post test(s) were evaluated (except for holidays and Sundays). If you did NOT receive a 75%, we will send the pages back with the questions needing a new answer selection. Send them back for a **FREE** re-evaluation. No refund will be provided for unsatisfactory personal performance on any ce product.

Plan the return of your post test(s) pages in a timely manner. I cannot accept emailed or faxed copies since I need to retain my **ORIGINAL** records for the ODH for 3 years in case you may be audited.

Remember to get your envelope weighed at the post office whenever submitting more than 4 pages. The post office will return it to you if you have insufficient postage, thereby delaying it for my evaluation and your certificate of completion.

Feel free to contact me by email: info@xrayhomestudies.com or telephone: **419 471-1973** if you have any questions. Please share with others in the future.

Thank you for selecting **S.T.A.R.S.** to meet your continuing education needs!

Sincerely,

Carolyn J. Frigmanski, M.A., B.S.R.T. ®, Founder



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How to renew your GXMO license in Ohio:

The Ohio Dept. of Health (ODH) requires a **minimum of 12 continuing education credits (ceus) to be completed every 2 years (your biennium) BEFORE your license expires.** You may do more than 12 ceus, but not less than 12 ceus, if you so choose. Ceus in excess of 12 cannot be carried over to the next biennium.

You will receive a hard copy renewal notice by mail from the ODH 60 days **BEFORE** your license expires. **It is your responsibility to amend your personal information to the ODH whenever you change your name, address or place of employment as soon as possible by using the ODH website or contacting the ODH by telephone at 614 752-4319 for assistance. Failure to receive an ODH notice is not an acceptable reason for failing to renew on time.** You can add completion of clinical modules to your GXMO license on the ODH web site.

Your ODH notice informs you that you may renew online or request a hard copy form from them. **You must have your S.T.A.R.S. certificate(s) of completion immediately available when you renew since your course title(s), number of ceus, and ODH accreditation number(s) and date(s) of completion are printed on it.**

You can renew immediately when you receive your notice or you have 30 days to complete the renewal process and payment to the ODH after your license expires. Online renewal requires your credit card for payment. If you chose hard copy renewal, you may submit a check or money order.

You and/or your employer can view and/or print your renewed license on line upon completion of the process. Problems that exist with renewal should be addressed to the ODH by calling for assistance.

S.T.A.R.S. personnel are NOT responsible for your renewal. Please direct any questions or needed assistance with renewal to the ODH personnel.

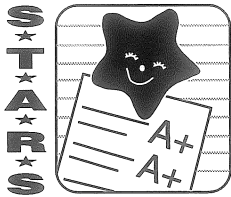
GXMOs must notify the ODH in writing within 30 days of any changes in the physician providing direct supervision. If your scope of practice changes (e.g. chiropractic to podiatric), a competency form must be completed and submitted to the ODH.

You may also want to check the ODH web site periodically for changes that may have occurred during your biennium and to share this information with your co-workers and/or administrative staff members.

The ODH website is: <http://www.odh.ohio.gov/odhPrograms/rp/rlic/ristatus.aspx>

Email is: BRadiation@odh.ohio.gov

Thank you very much.



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Instructions for Mailing your Continuing Education Post Tests

Complete ALL hard copy unit post tests for the products you purchased in legible printing BEFORE your license expires. Mail is processed the same day it is received.

You may want to copy them BEFORE you mail them to the S.T.A.R.S. office to minimize mail delivery complications. They will NOT be returned to you unless you get a 75% or less. If you do NOT get a 75% or better after evaluation, the post tests will be sent back to you with the questions needing a new answer selection. After completing the questions, send them ALL back to the S.T.A.R.S. office for re-evaluation.

Be sure to use the CORRECT postage by having it weighed at the post office if it consists of more than 5 pages. Envelopes with INSUFFICIENT POSTAGE will be sent back to the participant and delay your post test evaluation and certificate creation.

I do NOT accept faxes since faxes fade over time and I need to keep my records for 3 years in case you would get audited by the Ohio Dept. of Health for some reason.

I do NOT accept scanned pages because I do NOT want you putting your private, personal information on the internet. I do NOT open attachments due to the threat of virus contamination that may jeopardize my web site and computerized databases.

Do NOT send your study media i.e. CD, DVD, booklets and/or books back to me.

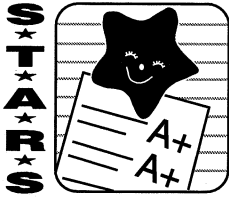
United States Postal Service (USPS):

If you are using USPS for priority or express mailing, please keep your receipt with the tracking number in case of a problem with the delivery. Please mark the section for NO SIGNATURE REQUIRED for express mail and send it to my home address: Carolyn J. Frigmanski, MA, BSRT (R) 3134 Aldringham Road Toledo, Ohio 43606. The USPS does NOT deliver to my P.O. Box address. Please call to let me know I should be expecting it at 419 471-1973.

FedEx or United Parcel Service UPS:

If you are using these delivery services, please keep your receipts with the tracking number in case of a problem with the delivery. Please mark the section for NO SIGNATURE REQUIRED for express mail and send it to my home address: Carolyn J. Frigmanski, MA, BSRT(R) 3134 Aldringham Road Toledo, Ohio 43606. Please call to let me know I should be expecting it at 419 471-1973.

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Dear S.T.A.R.S. participant,

Welcome to my **DVD on Radiation Protection that non-licensed applicants may use for preparation for the radiologic license examination or for continuing education by licensed gxmors!** There are over 800+ slides in its creation that correlate to the didactic curriculum developed by the Ohio Department of Health for license applicants and my CE product. I wanted you to know that you can **play this DVD on your computer** to view the entire presentation in addition to printing selected pages or all of it! You can also **play this DVD on your TVs** too so that others can view it collectively. You can stop, start and pause whenever necessary. It must be used with the hard copy **S.T.A.R.S. Study Guide** materials for license exam success. **No certificate will be awarded for watching its contents. You must successful complete and return all the post tests to the S.T.A.R.S. office for evaluation and creation of an official certificate to be sent to you.**

The **Presentation Menu** contains the audio-visual content of each individual topic for exam and CE content that has been approved by the Ohio Department of Health. Please disregard the Unit 00 due to ODH rule changes in 2012. The **Resources Menu** allows you hard copy printing of selected pages or all pages in any topic or all of the entire documents. Please follow the directions on the DVD label for printing capability.

As an educator, I realize that you may become overwhelmed by the course content. The primary motivation for this DVD is providing you an opportunity to review the contents at your own leisure and in the convenience of your home or workplace. **Repetition is the best form of learning so I hope you view it frequently as you prepare for the license examination or when submitting your CE post tests for evaluation.**

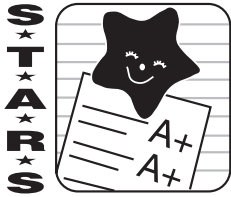
This DVD will be edited as changes occur within the state law or as personal needs change for general x-ray machine operators in their endeavors to successfully pass the state exam on the first attempt or CE post test. Some of the charts, graphs and/or tables were retyped for better readability when printed. There is a 5 second pause between frames to allow note taking and comprehension and a 10 second pause for frames with greater content. You may perceive a slight difference in my voice. I had to switch recording studio developers during the production process so the sound fluctuates minimally.

If you encounter any difficulty with your DVD, **please call Stuart, my web designer, who is listed on the back of the DVD case. He will assist you with your problem.**

Please feel free to contact me if you have any suggestions for improvements. It is always nice to get feedback from you as the learner rather than me as the developer.

Best wishes for your success in your career development.

Carolyn J. Frigmanski, M.A., B.S.R.T. ®, Founder



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The times for the various units are shown below.

Unit 0: 0:17:33
Unit 1: 1:07:32
Unit 2: 0:51:58
Unit 3: 0:33:57
Unit 4: 0:27:03
Unit 5: 0:22:03
Unit 6: 0:28:39
Unit 7: 1:14:59
Unit 8: 1:04:56
Unit 9: 0:18:33
Unit 10: 0:31:17
Unit 11: 0:29:25
Unit 12: 0:41:23
Unit Dt: 1:04:14

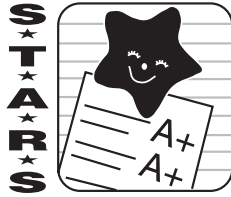
Stuart

Stuart Feldman
The Solar Stop
419-THE-STOP

Each unit of exam material has been timed for your convenience in allocating enough time to study without interruption of content. Don't forget to disregard Unit 0 since it was orientation and no longer applies to the 2012 ODH rule changes.

The numbers indicate the hours, minutes and seconds of dictation when the unit is not interrupted with stops, pauses and/or restarts. For example, Unit 1 is 1 hour: 7 minutes: 32 seconds in length.

Stuart is my web site and DVD designer. Feel free to contact him if you have any problem using your DVD at 419 843-7867.



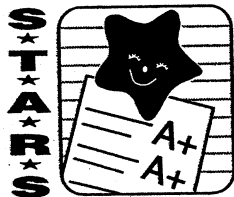
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- ❖ Please do **NOT** return the entire product! It's yours to keep except for the post test pages! I hope it will be a useful resource for you and others in your practice.
- ❖ You only need to fill out the information re: your name as you want it to appear on your certificate, your desired number i.e. social security number, last 4 digits of s.s. number or your license number; your address, etc. if the product you selected has multiple pages. You can initial the other pages and secure the group of pages with a staple so they don't become separated.
- ❖ Please use the correct postage when you return your post tests so delays are not incurred from insufficient postage.
- ❖ You can do the selected product only **ONCE**. Make other choices in the future.
- ❖ Others can share your media by ordering additional post tests at a reduced price. Group discounts are available too. Go to the **GXMO Order Form** tab for details.
- ❖ Don't forget to use the **GXMO Order Form** tab to select your next self/distance learning product for your license renewal in the future.



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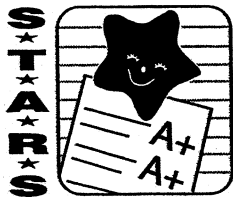
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Unit/s: 1

Category: Radiologic Physics

1. Completing these worksheets is an example of _____ energy!
2. The positive particle found in the nucleus is called a _____.
3. A _____ indicates the number of electrons in the outermost shell.
4. An(A) _____ is an atom that has gained or lost an electron.
5. Identify 1 important contribution from the process of ionization below:
6. The greatest source of radiation exposure on average to the U.S. population is _____.
7. _____ particles are composed of the He nucleus.
8. "Hard" x-rays possess _____ frequency & _____ wavelengths.
9. Ionizing radiation is located above _____ on the electromagnetic spectrum.
10. "Can Gramma really use Val's initial R" represents the order of the EMR spectrum. The word **really** represents the EMR called _____.
11. _____ rays originate by disturbing electrons and _____ rays originate from the nucleus.
12. X-rays can produce _____ and _____ changes in the human body.
13. Identify 2 properties of x-rays:
 1. _____
 2. _____
14. The interaction that occurs when incident x-rays ionize atoms and change direction with a loss of energy is called _____ effect.
15. The radiation that remains after attenuation to reach the image receptor is called _____.
16. As x-ray energy increases, we will have _____ photons transmitted through tissue.
17. The traditional unit of measurement for patient doses is the _____.
18. The metric unit of radiation used as an occupational dose equivalent is called _____.



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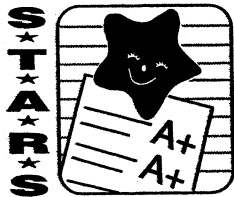
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Fill in the following information so that you can receive a signed certificate of completion from an official from S.T.A.R.S. when all the sections of the unit are completed.

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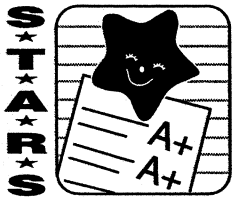
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Unit/s: 2

Category: Radiologic Physics

1. The process of electrification by rubbing objects together is called _____.
2. Materials that inhibit the flow of electrons in a conductor are called _____.
3. Identify 1 law of electrostatics:
4. The electrostatic force is _____ proportional to the product of the charges.
5. Electromotive force is another term for the _____ in our circuits.
6. An example of a _____ circuit is when 1 Christmas tree bulb goes out, they all go out!
7. _____ current involves the oscillation of electrons in opposite directions.
8. General x-ray tube circuits utilize _____ mA and _____ kV.
9. The _____ is the negative terminal contained in the glass envelope of the x-ray tube.
10. The target interaction involving the deceleration of electrons from the cathode is called _____ radiation.
11. Identify 1 method of prolonging x-ray tube life:
12. The _____ focal spot is the surface on the anode that encounters the electron stream.
13. An increase in kVp will _____ the penetrating ability of the x-ray beam.
14. The primary function of filtration is to eliminate _____ wavelengths from the x-ray beam.
15. Total filtration in diagnostic x-ray tubes is equivalent to _____ mm Al.
16. The protective housing reduces leakage radiation to less than _____ mR/hr. at 1 meter.
17. AEC can be constructed with a photomultiplier tube or an _____ chamber.



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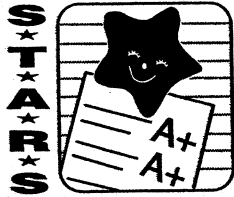
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Unit/s: 3

Category: Radiographic Quality/Technique

1. Exactness of anatomic structures within a useful density range describes the property called _____.
2. Unwanted/unnecessary optical densities on a radiographic image is called _____.
3. The prime factor of exposure that determines the number of x-rays is _____.
4. The term _____ is the degree of overall blackness on the image.
5. Higher mA selection will provide _____ density.
6. Faster film & screen speeds will _____ density.
7. Shorter S.I.D/F.F.D. will provide _____ density.
8. Increased filtration will _____ x-ray quantity.
9. The law that allows us to change mA and time to achieve the **SAME** density when adjustments are needed due to the patient or equipment limitations is called the _____ law.
10. Calculate the mAs: 200 mA @ 3/10 or .3 seconds = _____ mAs.
11. The law that we can utilize to **reduce our occupational dose** is called the _____ law.
12. The law that allows us to manipulate techniques to maintain the same density when distance changes is called the _____ law or formula.
13. Materials that do **NOT** allow x-rays to pass through are called _____.
14. The most dense tissue in the human body is _____.
15. Osteoporosis is considered/classified as a _____ pathology.
16. The body habitus of emaciated/extremely thin patients is described as _____.
17. The sensitometric/H & D/characteristic curve that contains the blackest density is _____.
18. The useful diagnostic range for image interpretation is _____ to _____.

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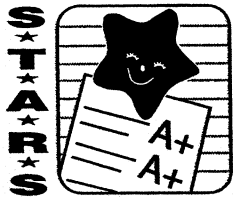
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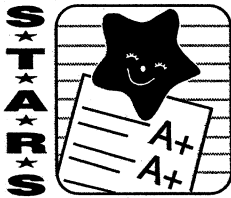
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Unit/s: 4

Category: Radiographic Quality/Technique

1. Radiographic images possessing many shades of gray are described as _____ scale.
2. Radiographic contrast is created/composed by both _____ and _____ contrast.
3. High or short scale contrast is produced by using _____ kVp.
4. Processing solutions that are too hot or incorrect will produce images with _____ scale contrast.
5. Patients with high atomic numbers will produce images with _____ scale contrast.
6. Tissues with greater mass density produce _____ scale of contrast.
7. The most important exposure factor that controls contrast & penetration of the part is _____.
8. Increasing kilovoltage will result in _____ fog due to increased scatter.
9. The film property that allows minor errors with technique is called _____.
10. The optimal kVp range for small extremities is _____ & AP/ lateral vertebral column is _____.
11. _____ filtration represents the attenuation/absorption by the window of the x-ray tube.
12. A _____ % increase in kVp will _____ the density on the finished radiograph.
13. Name 1 device/method to control scatter creation:
14. Scatter and patient dose will _____ when a larger x-ray beam field is used.
15. When exposure time increases, quality _____ and quantity _____.



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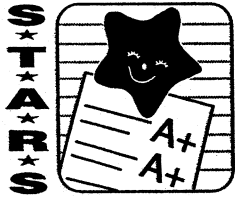
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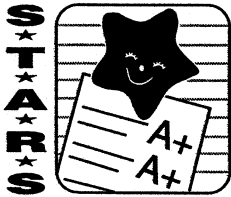
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Unit/s: 5

Category: Radiographic Quality/Technique

1. The ability to image small objects that have high subject contrast is called _____.
2. The term _____ refers to the image proper.
3. The _____ focal spot is projected to the patient and affects image sharpness.
4. A _____ focal spot provides the best radiographic detail.
5. _____ SID/FFD provides the best radiographic detail, but also increases patient dose.
6. _____ OID/OFD provides the best radiographic detail.
7. The biggest detriment to detail is _____ motion.
8. Identify 2 immobilization techniques commonly used in radiography: 1. _____ and 2. _____.
9. Identify 1 communication skill to use with our patients:
10. Technical errors will create _____ distortion.
11. Distortion can be created by the misalignment of either the (3 items): 1. _____ 2. _____ and/or _____.
12. The process of increasing the size of an object to improve diagnostic quality is called _____.
13. The 4 factors of radiographic quality are _____ discussed in Unit 3; _____ discussed in Unit 4 and _____ and _____ discussed in Unit 5.



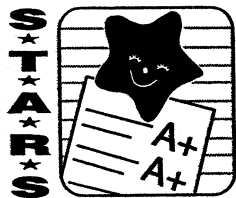
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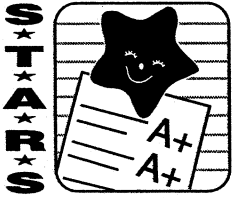
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Unit/s: 6

Category: Conclusion of Radiographic Quality/Technique

1. The primary function of a grid is to _____.
2. A _____ grid has canted lead strips.
3. _____ is the ratio of transmitted primary to secondary radiation through the grid.
4. The height of the grid strips divided by the width of the interspace defines grid _____.
5. Identify 1 problem using a grid that will result in poor image quality:
6. Improper use of grids will produce radiographic images demonstrating _____.
7. Identify 1 factor to consider when using a grid correctly:
8. A 10/12:1 grid ratio requires _____ x more exposure than non-grid.
9. When converting from non-grid to grid exposure correction, you must _____.
10. Identify 1 application/reason to use a grid:
11. Patient doses always go up when _____ ratio grids are used.
12. 2 techniques used to improve image quality when filming body parts of varying thicknesses are
 1. _____
 2. _____
13. Thinner body parts should be placed under the _____ terminal of the x-ray tube.



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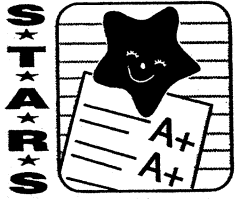
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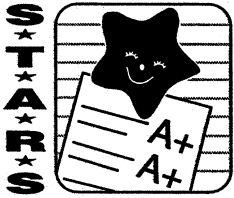
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Unit/s: 7

Category: Darkroom Processing & Film Handling

1. The photoreceptive layer of a radiographic film is also called its _____.
2. During exposure, the silver portion of the emulsion crystal becomes _____ charged.
3. The property that describes the film's ability to respond to light and/or radiation is called _____ or _____.
4. The conversion of the latent image into a manifest image occurs during _____ in the processing cycle.
5. The straight line portion of the sensitometric curve is also called _____.
6. Identify 2 safety precautions when handling processing chemicals:
 1. _____
 2. _____
7. Identify 1 function of the fixing solution: _____.
8. Describe 1 method to preserve the developer strength: _____.
9. Any undesirable density on a radiographic image is called _____.
10. The purpose of replenishment in the automatic processor is to _____.
11. Dirt or chemical stains on rollers may produce an artifact described as _____ lines.
12. Proper storage of radiographic film is _____ % humidity.
13. The emission of light in intensifying screens is the principle of _____.
14. The random interaction of x-rays with screens is _____.
15. Intensifying screens with large crystals in thick active layers will _____ patient dose.
16. Identify 1 precaution to utilize when cleaning and caring for intensifying screens:



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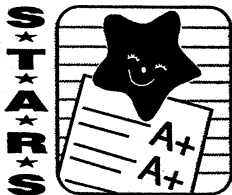
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Unit/s: Digital Imaging

Category: Digital Imaging Principles

1. A _____ signal consists of a string of binary numbers called _____.
2. The smallest component of the matrix is called the _____.
3. Increasing the window level _____ the image brightness.
4. Window level controls _____ & window width controls _____.
5. The standard to enable imaging systems from various manufacturers to communicate is called _____.
6. The most commonly used matrix size for DR is _____ X _____.
7. The 3 steps to produce a digital image include: 1. _____
2. _____ and 3. _____.
8. The crystal used most often in CR PSP IPs is _____.
9. _____ conversion DR utilizes a-Selenium as an x-ray photoconductor.
10. The device made of photosensitive silicon chips is called a _____.
11. Identify 1 difference between CR and Conventional film: _____.
12. Identify 1 difference between CR and DR: _____.
13. A chart mapping out brightness & pixel distribution is called a _____.
14. The “_____” number reflects the center of the usable portion of the histogram.
15. The conversion of information from x-ray intensities into a radiographic image is called _____.
16. The postprocessing technique that removes superimposed structures is called _____.



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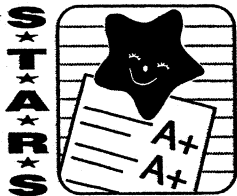
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Unit/s: 8

Category: Radiobiology

1. A _____ effect occurs many months or years after the initial radiation exposure.
2. The most prevalent atom in the human body is _____.
3. The most radiosensitive macromolecule subject to radiation damage is _____.
4. _____ act as enzymes, hormones & antibodies.
5. The double helix structure describes _____ located in the _____ of the cell.
6. Genetic change is the result of a radiation interaction called _____.
7. A _____ effect occurs when the ionizing radiation hits the target molecule.
8. Breakage of the thread or backbone of a macromolecule is called _____
_____.
9. Identify 1 observable effect of radiation insults to the DNA molecule: _____.
10. _____ are organelles that produce energy.
11. Somatic cells divide by _____; sex cells undergo _____.
12. _____ phase is the replication of parent DNA into 2 daughter DNA molecules.
13. The most radiosensitive sex cell stage for males is _____ & females
_____.
14. A classic example of intracellular repair/repopulation that most of us have experienced is called
_____.
15. Our most radiosensitive cell type is _____; most radioresistant is
_____.
16. _____ rems can cause death to human beings.
17. The law that describes the principles of cell radiosensitivity was developed by 2 Frenchmen named
_____ and _____.
18. _____ effects occur when given enough dose.

19. Radiation protection guidelines are based on a _____,

dose-response relationship.

20. Increasing LET and oxygen concentration _____ biologic damage.

21. The principal radiation interaction in the human body involves the radiolysis of _____.

22. A _____ is a highly reactive & unstable molecule that creates damaging products.

23. The most radiosensitive period in our human lives occurs during

_____.

24. A fraction of exposure to the pregnant woman will expose the embryo or fetus because of the
creation of _____ radiation.

25. Identify 2 methods of protecting the pregnant patient from radiation exposure:

1. _____

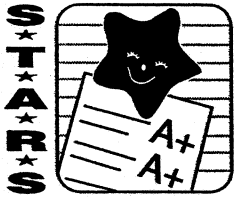
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Unit/s: 9

Category: Radiobiology

1. Cell counts can be depressed with _____ rads of x-ray exposure.
2. _____ radiation syndrome occurs when ionizing radiation occurs over a short time.
3. Identify 2 early effects of radiation exposure:
1. _____ and 2. _____.
4. The _____ stage involves hemorrhage, dehydration and infection.
5. The gastrointestinal syndrome occurs when radiation exposure exceeds _____ rads.
6. The 50 in LD 50/30 indicates the _____.

Unit 10

Category: Radiobiology

1. X-rays were discovered by _____ and natural radioactivity was discovered by _____ and _____.
3. The first fatality from man-made radiation in the U. S. was _____.
3. Identify 1 radiation injury sustained by our early investigators: _____.
4. What historic occupational population experienced cataract formation? _____.
5. Identify 1 effect of radiation on skin: _____.
6. A significant number of children treated with radiation therapy for thymus enlargement developed _____ cancers.
7. What historic occupational population experienced bone cancer? _____.
8. What historic population experienced an increase in breast cancer? _____.
9. What historic occupational population experienced lung cancer? _____.
10. Permanent sterility in both sexes can result with _____ rads or _____ Gys.

11. _____ risk describes the late radiation effects in large populations when the precise dose is unknown.

12. Life span shortening for radiation workers is _____ days of expected life for every 1 rad based on mouse research.

13. A controversial study on life-span shortening was experienced by _____.

14. The annual risk of dying this year from 100 mrad of radiation is _____.

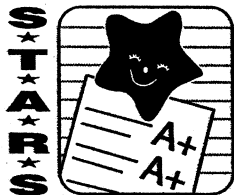
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Unit/s: 11

Category: Radiation Protection

1. The measurement & testing of radiographic equipment is called _____
_____.
2. The entire rack assembly should be cleaned _____.
3. Developer, wash water and replenishment rates should be checked _____.
4. Collimator field size and centering should be checked _____.
5. Identify 1 method/principle we can use to reduce unnecessary patient doses below:

6. Identify 1 way to minimize positioning errors: _____
7. Identify 1 factor to consider for time selection: _____
8. Identify 1 consideration when using a technique chart to establish accurate exposure calculation.

9. The technique chart utilizing specific kVp for a specific exam is called _____.
10. Identify 1 factor that is selected when constructing an automated exposure chart.

11. Correct chamber selection and patient centering is critical when using _____ equipment.
12. Gonad shielding should be used if the gonads lie within or _____ cms. to the primary x-ray field.
13. Which gonadal shielding policy is preferred and explain why:

14. Identify 1 method/principle to provide patient protection: _____
15. Identify the 2 most common non-ionizing imaging modality options for pregnant patients.
 1. _____ and 2. _____
16. The federal law about privacy practices, legal duties & patient rights is called _____.
17. Identify 2 necessary permanent markers on our radiographic images:



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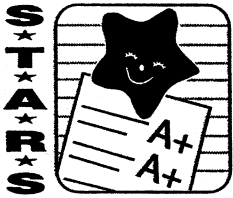
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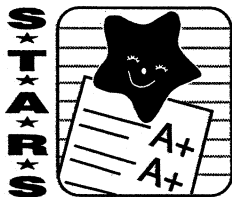
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Unit/s: 12

Category: Radiation Protection

1. The 3 cardinal principles of radiation protection are _____, _____ and _____.
2. ALARA stands for _____.
3. Identify 1 concept of ALARA: _____.
4. The monthly dose limit during pregnancy is _____ mSv and _____ mSv for 9 months.
5. The cumulative whole-body dose limit for a 26 year old radiation worker is _____ mSv.
6. Identify 2 personnel protective devices: 1. _____ and
2. _____.
7. Anyone likely to exceed _____ % of the annual limit must be monitored.
8. The radiation monitoring device that utilizes a lithium fluoride chip is called a
_____ dosimeter.
9. Identify 1 **exposure dose** that is provided on a personnel monitoring report below:
_____.
10. No one is allowed to wear the _____ monitor.
11. What do you do if your personnel monitor is lost? _____.
12. Identify 1 equipment design that protects us from radiation exposure: _____.
13. A _____ protective barrier is constructed of _____ " Pb or _____ " of masonry.
14. The best method to immobilize patients is to use _____.
15. What is the first step for pregnant radiation workers to do? _____.
16. Identify 3 important aspects of radiation protection other than the 3 cardinal principles and ALARA: 1.
2.
3.



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