**Reading Hospital Medical Imaging Program**
**MI 132 – Imaging Principles and Equipment**

**Unit 6 – Radiographic Exposure Technique Worksheet**
**2022-2023**

1. Calculate the mAs -
    a. 200 mA (.5 s) =

    b. 400 mA (75 ms) =

    c. 300 mA (1 ms) =

        - Which of these would produce the highest receptor exposure and therefore the highest patient dose?

2. Using 300 mA @ 1 ms, give two options of combinations of mA and time that would **double** mAs and therefore receptor exposure.

3. Using 400 mA and 75 ms, give two options of combinations of mA and time to **halve** the mAs and therefore receptor exposure.

4. Using 500 mA and .02 s, give two options of combinations of mA and time to **maintain** receptor exposure.

5. A procedure that is being performed requires 4 mAs to be used. You must use 200 mA. What exposure time do you need to use?

6. You need to complete a x-table lateral L-spine, using 25 mAs. The typical technique calls for 25 mA @ 1 second but the patient is uncooperative; therefore, you want to reduce your time to 0.25 seconds. What mA do you need to use?

7. **Double** receptor exposure by changing kVp if original technique used was 10 mAs at 80 kVp.

8. **Halve** receptor exposure by changing kVp if original technique used was 10 mAs at 80 kVp.

9. **Maintain** receptor exposure: 20 mAs @ 90 kVp changed to 10 mAs @ _____ kVp

10. **Maintain** receptor exposure: 10 mAs @ 120 kVp changed to 20 mAs @ _____ kVp

11. **Maintain** receptor exposure – 16 mAs @ 70 kVp changed to _____ mAs @ 80 kVp

12. **Maintain** receptor exposure – 2 mAs @ 100 kVp changed to _____ mAs @ 85 kVp

13. **Maintain** receptor exposure – 32 mAs @ 100 kVp changed to 64 mAs @ _____ kVp

14. Direct EI imaging system – appropriate EI range is 100-300. An AP Axial Foot was performed and had an EI of 75 using 100 mA @ .01 s. What new technique would need to be used to get it within the appropriate range?

15. First x-ray taken using 8 mAs @ 65 kVp at a 40 inch SID. What new mAs should you use to maintain receptor exposure if you were to decrease SID to 34 inches?

16. First x-ray taken using 20 mAs @ 70 kVp at a 40" SID. What new mAs should you use to maintain the receptor exposure if you were to increase SID to 66"?

17. If you x-ray an object at 40"SID and there is a 32" SOD, what will the magnification factor of the imaged object be? What is the percentage of magnification?

18. A PA Chest is produced with an SID of 72" and an OID of 2". What is the MF? What is the percentage of magnification?

19. An object measures 6.5" on the image. Mag factor was 2.66. What is the object size?

20. An object measures 4". Mag factor is 1.15. What is the projected image size?

21. The size of a round lesion in the right lung measures .65" in diameter on the image. The MF has been determined to be 1.013. What is the actual object size of the lesion?

22. The size of the heart is 4" wide. The MF has been determined to be 1.6. What is the projected image size?

23. A lesion on the image measures 1.45 cm, and the lesion's (object) true size measures 1.25 cm. What is the object % of magnification?

24. A lesion on the image measures 2.3 cm, and the lesion's (object) true size measures 1.7 cm. What is the object % of magnification?

25. A patient's chest measures 25 cm. The technique book indicates 2 mAs @ 90 kVp for a measurement of 21 cm. What new technique should be used to obtain appropriate exposure to the IR?

26. A patient's abdomen measures 14 cm. The technique book indicates 10 mAs @ 80 kVp for a measurement of 18 cm. What new technique should be used to obtain appropriate exposure to the IR?