MULTIPLE CHOICE

1. X-rays were discovered
   a. November 8, 1805
   b. November 8, 1875
   c. November 8, 1895
   d. November 8, 1985

   ANS: C
   X-rays were discovered November 8, 1895.

2. Barium platinocyanide was the material in Dr. Roentgen's laboratory that
   a. covered the cathode ray tube
   b. fluoresced when the cathode ray tube was energized
   c. was used to produce the radiograph of Bertha Roentgen's hand
   d. protected the people in the room from the x-rays

   ANS: B
   A piece of cardboard covered with barium platinocyanide fluoresced when the tube was energized, leading to further investigation.

3. Wilhelm Roentgen's lab was located in
   a. Wurzburg
   b. Zurich
   c. Paris
   d. Boston

   ANS: A
   Dr. Roentgen's lab was located at the University of Wurzburg in Wurzburg, Germany.

4. The first radiograph produced by Dr. Roentgen was of
   a. his own hand
   b. his daughter's hand
   c. his son's hand
   d. his wife's hand

   ANS: D
   The first radiograph was taken December 22, 1895, of his wife, Bertha's, hand.

5. Exposure times for very early radiographs ranged from
   a. 1 second to 5 seconds
   b. 1 minute to 15 minutes
   c. 20 minutes to 2 hours
   d. 2 hours to 5 hours

   ANS: C
   Exposure times for early radiographs took from 20 minutes to 2 hours to produce an image.

6. Acute radiodermatitis was
   a. the radiation burn resulting from excessive exposure to x-rays
   b. common among early patients and operators of x-ray equipment
   c. a delayed reaction to excessive x-ray exposure
   d. all of these

   ANS: D
   Early on, the excessive radiation exposure to many operators and patients resulted in radiation burns, a delayed response to the exposure.

7. Who brought attention to the dangers of x-rays?
   a. Wilhelm Roentgen.
   b. Bertha Roentgen.
   c. Crookes.
   d. Thomas Edison.

   ANS: D
   Thomas Edison, the famous American inventor, suffered a radiation burn and brought attention to the dangers of x-rays.

8. An example of how x-rays were used for entertainment or business gain in a dangerous manner was the
   a. fluoroscopic shoe fitter
   b. x-ray stove polish
   c. x-ray headache tablets
   d. x-ray golf balls

   ANS: A
   Although the stove polish, headache tablets, and golf balls used "x-ray" in their names, the shoe fitter actually exposed shoppers to radiation.

9. Mass, length, and time are considered
   a. fundamental quantities
   b. derived quantities
   c. radiologic quantities
   d. none of these

   ANS: A
   Mass, length, and time are the most basic or fundamental quantities.

10. Velocity, acceleration, and work are
    a. fundamental quantities
    b. derived quantities
    c. radiologic quantities
    d. none of these

    ANS: B
    Along with force, momentum and power, velocity, acceleration, and work are derived from the fundamental quantities.

11. Exposure, dose, and dose equivalent are
    a. fundamental quantities
    b. derived quantities
    c. radiologic quantities
    d. none of these

    ANS: C
    Along with the measure of radioactivity, dose, dose equivalent, and exposure are radiologic quantities.

12. The metric system is also known as the
    a. British system
    b. System International (SI)
    c. System of Units (SU)
    d. French system

    ANS: B
    The metric system is also known as the System International (SI).

13. In the SI system the unit of measure for mass is
    a. pound
    b. gram
    c. kilogram
    d. ton

    ANS: C
    The SI system uses kilogram to quantify mass.

14. In the SI system the unit of measure for length is
    a. meter
    b. kilometer
    c. foot
    d. mile

    ANS: A
    The SI system uses meter to quantify length.

15. In the SI system the unit of measure for time is
    a. minute
    b. second
    c. hour
    d. day

    ANS: B
    The SI system uses second to quantify time.

16. In the British system the unit of measure for mass is
    a. pound
    b. gram
    c. kilogram
    d. ton

ANS: A
The British system uses pound to quantify mass.

17. In the British system the unit of measure for length is
    a. meter
    b. kilometer
    c. foot
    d. mile

    ANS: C
    The British system uses *foot* to quantify length.

18. In the British system the unit of measure for time is
    a. minute
    b. second
    c. hour
    d. day

    ANS: B
    The British system uses *second* to quantify time.

19. _____ is equal to distance traveled divided by the time needed to cover that distance.
    a. Work
    b. Momentum
    c. Velocity
    d. Acceleration

    ANS: C
    Distance traveled divided by the time needed to cover that distance is the formula to derive velocity.

20. Meters per second squared (m/s2) is the unit of measure of
    a. velocity
    b. momentum
    c. force
    d. acceleration

    ANS: D
    Meters per second squared (m/s2) is the unit of measure of acceleration.

21. Newton is the unit of measure of
    a. velocity
    b. momentum
    c. force
    d. acceleration

    ANS: C
    Force is measured in Newtons.

22. Kilograms-meters per second (kg-m/s) is the unit of measure of

a. velocity
b. momentum
c. force
d. acceleration

ANS: B
Kilograms-meters per second (kg-m/s) is the unit of measure of momentum.

23. Joule is the unit of measure of
a. power
b. force
c. work
d. momentum

ANS: C
Joule is the unit of measure of work.

24. Watt is the unit of measure of
a. power
b. force
c. work
d. momentum

ANS: A
Watt is the unit of measure of power.

25. Fd (force × distance) is the formula to determine
a. power
b. force
c. work
d. momentum

ANS: C
Fd (force × distance) is the formula to determine work.

26. Work/time is the formula to determine
a. power
b. force
c. work
d. momentum

ANS: A
Work divided by the time over which it is done (work/t) is the formula for power.

27. The formula mv (mass × velocity) is used to determine
a. power
b. force
c. work
d. momentum

ANS: D