

Chapter 1 Radiobiology History

MULTIPLE CHOICE

1. Which of the following is the branch of science concerned with the methods of interaction and the effects of ionizing radiation on living systems?
- a. radiobiology
 - b. biology
 - c. physics
 - d. epidemiology

ANS: A PTS: 1

2. Which of the following is credited with the discovery of x-rays in 1895?
- a. Antoine Henri Becquerel
 - b. Pierre and Marie Curie
 - c. Wilhelm Conrad Roentgen
 - d. Thomas Edison

ANS: C PTS: 1

3. Which of the following is credited with the observance of rays being given off by a uranium-containing substance in 1896?
- a. Antoine Henri Becquerel
 - b. Wilhelm Conrad Roentgen
 - c. Pierre and Marie Curie
 - d. Clarence Dally

ANS: A PTS: 1

4. Which of the following is credited with the discovery of radium in 1898?
- a. Antoine Henri Becquerel
 - b. Wilhelm Conrad Roentgen
 - c. Pierre and Marie Curie
 - d. Clarence Dally

ANS: C PTS: 1

5. Which of the following, an assistant to Thomas Edison, died of complications from exposure to radiation?
- a. Clarence Dally
 - b. William Rollins
 - c. Mihram Kassabian
 - d. Marie Curie

ANS: A PTS: 1

6. Which of the following, in 1906, observed the effects of radiation by exposing rodent testicles to x-rays?
- a. Bergonie & Tribondeau
 - b. Ancel & Vitemberger
 - c. Regaud
 - d. Muller

ANS: A PTS: 1

7. Which of the following, in 1925, observed the effects of radiation by exposing mammals to x-rays?
- a. Bergonie & Tribondeau
 - b. Ancel & Vitemberger
 - c. Regaud
 - d. Muller

ANS: B PTS: 1

8. Which of the following, in the 1920s, observed the effects of radiation by exposing sheep testicles to x-rays?
- a. Bergonie & Tribondeau
 - b. Ancel & Vitemberger
 - c. Regaud
 - d. Muller

ANS: C PTS: 1

9. Which of the following, in 1927, observed the effects of radiation by exposing fruit flies to x-rays?
- a. Bergonie & Tribondeau
 - b. Ancel & Vitemberger
 - c. Regaud
 - d. Muller

ANS: D PTS: 1

10. Which of the following, in the 1940s, observed the effects of radiation in the presence of oxygen?
- a. Rick
 - b. Lea
 - c. Puck & Marcus
 - d. Elkind & Sutton-Gilbert

ANS: A PTS: 1

11. Which of the following, in 1946, did research on the hydrolysis of water?
- a. Rick
 - b. Lea
 - c. Puck & Marcus
 - d. Elkind & Sutton-Gilbert

ANS: B PTS: 1

12. Which of the following, in 1956, observed the effects of radiation by exposing human uterine cervix cells to x-rays?
- a. Rick
 - b. Lea
 - c. Puck & Marcus
 - d. Elkind & Sutton-Gilbert

ANS: C PTS: 1

13. Regaud discovered that if original doses were broken up into smaller doses spread out over a period of time, animals would become sterile, but with considerably less damage to their skin. This is known as which of the following?
- a. fractionation theory
 - b. mutagenesis
 - c. oxygen effect
 - d. reproductive failure

ANS: A PTS: 1

14. Muller discovered that radiation-induced mutations were the same as those produced in nature. This is known as which of the following?
- a. fractionation
 - b. mutagenesis
 - c. oxygen effect
 - d. reproductive failure

ANS: B PTS: 1

15. Rick discovered that oxygen increases the cell-killing effect of a given dose of radiation. This is known as which of the following?
- a. fractionation
 - b. mutagenesis
 - c. oxygen effect
 - d. reproductive failure

ANS: C PTS: 1

16. Lea discovered that hydrolysis of water resulted in free radical formation. This is known as which of the following?
- a. fractionation
 - b. mutagenesis
 - c. oxygen effect
 - d. mechanism of indirect action

ANS: D PTS: 1

17. The Law of Bergonie infers which of the following?
- a. stem cells are more radiosensitive than mature cells
 - b. older tissues and organs are more radiosensitive than younger tissues and organs
 - c. the lower the metabolic activity of a cell, the more radiosensitive it is
 - d. the lower the proliferation and growth rate for tissues, the lower the radiosensitivity

ANS: A PTS: 1

18. Which of the following is a measure of the ionization of air created by x- and gamma-radiation?
- a. Roentgen (R)
 - b. rad
 - c. rem
 - d. curie

ANS: A PTS: 1

19. Which of the following describes the energy that is absorbed in matter from any type of ionizing radiation, and is considered the unit of absorbed dose?
- a. Roentgen (R)
 - b. rad
 - c. rem
 - d. curie

ANS: B PTS: 1

20. Which of the following is the unit of dose equivalent or occupational exposure?
- a. Roentgen (R)
 - b. rad
 - c. rem
 - d. curie

ANS: C PTS: 1

21. Which of the following is the SI unit for Roentgen (R)?
- a. coulomb/kilogram
 - b. gray
 - c. sievert
 - d. becquerel

ANS: A PTS: 1

22. Which of the following is the SI unit for the rad?
- a. coulomb/kilogram
 - b. gray
 - c. sievert
 - d. becquerel

ANS: B PTS: 1

23. Which of the following is the SI unit for the rem?
- a. coulomb/kilogram
 - b. gray
 - c. sievert
 - d. becquerel

ANS: C PTS: 1

24. Which of the following is the SI unit for the curie?
- a. coulomb/kilogram
 - b. gray
 - c. sievert
 - d. becquerel

ANS: D PTS: 1

25. What is the current annual effective dose limit for occupational exposure?
- a. 0.05 rem
 - b. 0.5 rem
 - c. 5 rem
 - d. 50 rem

ANS: C PTS: 1