CONTINUING EDUCATION TEST: SNM Practice Guideline for Lung Scintigraphy 4.0

1. The biological half-life of $^{99m}$TcMAA is…
   A. 30–60 min.
   B. 60–90 min.
   C. 90–180 min.
   D. 180–270 min.

2. Common clinical indications for lung scintigraphy include all of the following except…
   A. Evaluate for pulmonary emboli.
   B. Evaluate for pulmonary infarction.
   C. Evaluate lung transplant.
   D. Evaluate resolution of pulmonary emboli.

3. Inhomogeneous distribution of activity on an adult $^{99m}$Tc-MAA perfusion image may result from…
   A. A tagging efficiency less than 80%.
   B. Shine-through artifact from the ventilation lung scan.
   C. A reduction in the number of particles below 100,000.
   D. Irregular or shallow breathing during injection.

4. A pediatric dose of $^{99m}$Tc-MAA is calculated as…
   A. 0.15 MBq/kg (0.004 mCi/kg).
   B. 0.75 MBq/kg (0.02 mCi/kg).
C. 1.11 MBq/kg (0.03 mCi/kg).
D. 1.75 MBq/kg (0.05 mCi/kg).

5. Worldwide, ventilation imaging is practical using an agent that has a stable distribution including all of the following except…
   A. $^{99m}$Tc aerosols.
   B. $^{133}$Xe.
   C. $^{81m}$Kr.
   D. $^{99m}$Tc carbon microparticles.

6. Lung scintigraphy is defined as a diagnostic test that records…
   A. Bronchopulmonary distribution of inhaled radioactive aerosol within the lungs.
   B. Pulmonary distribution of radioactive gas during breathing.
   C. Distribution of pulmonary arterial blood flow.
   D. Ventilation–perfusion images to evaluate cardiovascular and pulmonary disorders.

7. Hot spots on the perfusion lung scan can occur as the result of…
   A. Clotted blood in the syringe during injection.
   B. Tagging efficiency less than 75%.
   C. Inadequate mixing during preparation.
   D. Inadequate number of particles.

8. The use of bronchodilator therapy before lung scintigraphy may…
   A. Enhance ventilation defects.
B. Decrease ventilation defects.
C. Not affect ventilation defects.
D. Significantly increase ventilation defects.

9. The organ receiving the largest dose of radiation following an aerosol study using $^{99m}$Tc-DTPA is the…
   A. Lung.
   B. Bladder.
   C. Thyroid.
   D. Myocardium.

10. The fraction of right-to-left shunt can be approximated by comparing the activity in the lungs with the activity in the…
    A. Brain.
    B. Liver.
    C. Myocardium.
    D. Body.

11. Breast feeding should be discontinued for ________ hours after a 148-MBq (4.0-mCi) injection of $^{99m}$Tc-MAA.
    A. 4.
    B. 8.
    C. 12.
    D. 16.
12. $^{99m}$Tc-MAA should be injected with the patient in the ________ position.
   A. Standing.
   B. Sitting.
   C. Supine.
   D. Distribution is unaffected by patient position.

13. Ventilation–perfusion mismatch can result from all of the following except…
   A. Congestive obstructive pulmonary disease.
   B. Acute pulmonary embolism.
   C. Obstruction of an artery by tumor.
   D. Radiation therapy.

14. An image of the ________ provides the most accurate method to detect small shunts.
   A. Lungs.
   B. Brain.
   C. Thyroid.
   D. Myocardium.

15. When performing lung scintigraphy using $^{99m}$Tc-MAA and $^{99m}$Tc-DTPA, it is important that the count rate of the second study be at least ________ times higher than the count rate of the first study.
   A. 1–2.
   B. 2–3.
   C. 3–4.
   D. 4–5.