

CONTINUING EDUCATION TEST

Computer Processing Methods for Nuclear Medicine Images

For each of the following questions, select the best answer. Then circle the number on the CE Tests Answer Sheet that corresponds to the answer you have selected. Keep a record of your responses so that you can compare them with the correct answers, which will be published in the next issue of the *Journal*. Answers to these test questions should be returned on the Answer Sheet no later than December 1, 1994. Supply your name, address, and VOICE number in the spaces provided on the Answer Sheet. Your VOICE number appears on the upper left hand corner of your *Journal* mailing label. No credit can be recorded without it. A 70% correct response rate is required to receive 0.1 CEU credit for this article. Members participating in the continuing education activity will receive documentation on their VOICE transcript, which is issued in March of each year. Nonmembers may request verification of their participation but do not receive transcripts.

A. In planar imaging applications, the effect of increasing the value of the filter kernel results in a _____ image.

- 101. larger
 - 102. brighter
 - 103. smoother
 - 104. sharper
-

B. In tomographic data filtering, the lower the cutoff or critical frequency value, results in a _____ image.

- 105. larger
 - 106. brighter
 - 107. smoother
 - 108. sharper
-

C. Which of the following acquisition modes is used to assess the function of a particular organ over time?

- 109. static
 - 110. dynamic
 - 111. dual-isotope
 - 112. tomographic
-

D. Gated SPECT acquisitions are normally collected in a list mode format.

- 113. True
- 114. False

E. Image registration is performed to correct for:

- 115. patient motion
 - 116. dose infiltration
 - 117. irregular heartbeats
 - 118. phase angle shifts
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F. Circumferential analysis is a technique used when the ROI:

- 119. has notches in the border
 - 120. border has irregularity
 - 121. is nearly convex or oval in shape
 - 122. center cannot be located
-

G. A digital image is a two-dimensional set, or matrix, of numbers associated with some measurement.

- 123. True
 - 124. False
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H. Which of the following has the highest attenuation coefficient in the body for high-energy photons.

- 125. the heart
- 126. the lungs
- 127. the interstitial fluids
- 128. the bones

I. In the determination of relative ERPF rates, the ROIs must be created during:

- 129. 1-2, 2-3 min of dynamic acquisition
 - 130. 3-4, 4-5 min of dynamic acquisition
 - 131. 5-6, 6-7 min of dynamic acquisition
 - 132. the static phase of the ^{131}I -OIH study
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J. Understanding image processing and quantified measurement is important for standardization of image interpretation.

- 133. True
 - 134. False
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K. For tomographic reconstruction, there are standard defined reslicing planes and a standard defined method for creating them.

- 135. True
 - 136. False
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L. A ^{133}X cerebral blood flow study:

- 137. is a current common nuclear medicine procedure.
- 138. is one of the only examples of dynamic acquisition and time-activity curves applied to tomography.
- 139. has widespread use due to its ease in acquisition
- 140. shows gas washout that is not in proportion to blood flow