

CONTINUING EDUCATION TEST #1

Caring for the Older Patient, Part II

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. Complete the answer sheet. 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 *JNMT*. Answers to these test questions should be returned on the Answer Sheet no later than **August 15, 1997**. An 80% correct response rate is required to receive 1.0 CEH (Continuing Education Hour) credit for each article. SNM Technologist Section members can find their VOICE number on the upper left-hand corner of their *JNMT* mailing labels. If you've joined our Nonmember VOICE Tracking Program, please check the **NMVT** box on the Answer Sheet (no extra fee is required). Documentation will appear on your VOICE transcript which is issued in March of each year. Nonmembers who have not joined our Nonmember VOICE Tracking Program must mail a \$10.00 check or money order, made payable to SNM, along with the completed quiz. You will receive a certificate of completion indicating credit awarded for receiving a passing score of 80% or better.

A. *It is normal for the arms and legs to lose body fat while the abdomen and hips gain body fat as a person ages.*

- 101. true
- 102. false

B. *Cardiac enlargement in older adults is a proven normal age-related change.*

- 103. true
- 104. false

C. *Senile plaques and neurofibrillary tangles develop only in the case of dementia.*

- 105. true
- 106. false

D. *Age-related changes in blood pressure are uniform across cultures and races.*

- 107. true
- 108. false

E. *Blood urea nitrogen levels are about _____% higher by age 70.*

- 109. 10
- 110. 20
- 111. 30
- 112. 40

F. *Bone loss begins at approximately what age?*

- 113. 40 yr
- 114. 50 yr
- 115. 60 yr
- 116. 75 yr

G. *Age-related changes in vision due to structural changes in the eye are called _____.*

- 117. presbycusis
- 118. presbytrics
- 119. presbycardia
- 120. presbyopia

H. *Osteoarthritis is an autoimmune disease attacking connective tissue throughout the body.*

- 121. true
- 122. false

I. *Which of the following are the most common fracture sites in the elderly?*

- 123. femur, knee, ankle
- 124. vertebrae, humerus, tibia
- 125. wrist, clavicle, hip
- 126. ribs, vertebrae, knee

J. *The most common disease of the colon in the U.S. is _____.*

- 127. colorectal cancer
- 128. diverticulosis
- 129. diverticulitis
- 130. Meckel's diverticulum

K. *Which of the following characterizes symptoms exhibited by older patients?*

- 131. atypical
- 132. nonspecific
- 133. blunted pain sensation
- 134. all of the above are correct

L. *In the case of myocardial infarction, angina is not a typical symptom in those over 80 yr old.*

- 135. true
- 136. false

M. *Which of the following conditions signal an increased risk for stroke?*

- 137. diabetes
- 138. hypertension
- 139. transient ischemic attacks
- 140. all of the above are correct

N. *Which of the following conditions is reversible?*

- 141. acute confusion
- 142. Alzheimer's disease
- 143. dementia
- 144. 141 and 143 are correct

O. *All of the following techniques may be used when communicating with a person with age-related hearing loss except _____.*

- 145. modulating a higher pitched voice
- 146. minimizing background noise
- 147. securing the person's attention
- 148. shouting key words

P. *Orienting confused patients to personnel and surroundings can be helpful in gaining their cooperation.*

- 149. true
- 150. false

Q. *Optimal lighting conditions for older patients include dimly lit waiting and imaging rooms.*

- 151. true
- 152. false

R. *Elderly patients are susceptible to hypothermia at temperatures below 68°F.*

- 153. true
- 154. false

CONTINUING EDUCATION TEST #2

Radiation Safety Considerations for PET Centers

S. Technologists handling positron-emitting radionuclides often have measured whole-body and extremity radiation exposures that are twice as high as typical exposures for those working with single-photon emitting radionuclides.

- 155. true
- 156. false

T. Factors that contribute to radiation exposures from positron-emitting radionuclides are the _____.

- 157. ionizing potential of the positron
- 158. energy of the resultant annihilation photons
- 159. quantity of radionuclide routinely administered
- 160. 157 and 158 are correct
- 161. all of the above are correct

U. The energy of the gamma photons generated as a result of the interaction of a positron with an electron is _____.

- 162. 511 keV for all positron emitters
- 163. dependent on the distance the positron travels
- 164. dependent on the density of the material absorbing the photons
- 165. 163 and 164 are correct
- 166. all of the above are correct

V. The increased thickness of lead or tungsten needed to provide the same level of shielding for 511-keV photons, as for 140-keV photons, is an increase in magnitude of _____.

- 167. 6 times
- 168. 8 times
- 169. 10 times
- 170. 12 times
- 171. 14 times

W. Methods of reducing staff radiation exposure from PET studies include which of the following?

- 172. increase the thickness of the shielding
- 173. automate the radiopharmaceutical administration process
- 174. placing an intravenous line before injection to reduce the radiopharmaceutical administration time
- 175. use tungsten shielding instead of lead shielding
- 176. all of the above are correct

X. The distance a positron travels before its annihilation is directly proportional to which of the following?

- 177. the initial energy of the electron
- 178. the initial energy of the neutron
- 179. the initial energy of the positron
- 180. the density of the material it is being absorbed in
- 181. none of the above are correct

Y. All positrons of the same isotope have the same initial energy.

- 182. true
- 183. false

Z. Each positron emitter has a characteristic spectrum of positron energies.

- 184. true
- 185. false

AA. Cataract formation _____.

- 186. is a stochastic event
- 187. is a nonstochastic event
- 188. is dose dependent
- 189. has a radiation exposure threshold
- 190. 187, 188 and 189 are correct

BB. The annual occupational dose limit for adults to the eye is a dose equivalent of _____.

- 191. 5 rem (0.05 Sv)
- 192. 10 rem (0.10 Sv)
- 193. 15 rem (0.15 Sv)
- 194. 20 rem (0.20 Sv)
- 195. 50 rem (0.50 Sv)

CC. PET studies require _____ radiation protection precautions when compared to studies with ^{99m}Tc .

- 196. additional
- 197. fewer
- 198. the same

DD. In order to keep radiation exposures as low as reasonably achievable, _____ must be optimized when designing PET facilities and when developing PET procedures.

- 199. time
- 200. distance
- 201. shielding
- 202. 199 and 201 are correct
- 203. 199, 200 and 201 are correct

Answers to CE Article Test #1, March 1997

The continuing education article "Radiation Safety Review for 511-keV Emitters in Nuclear Medicine" by Dell was accompanied by a CE test. The correct answers are as follows.

- A. 104 D. 116 G. 130 J. 142 M. 154
 B. 108 E. 122 H. 134 K. 146
 C. 115 F. 124 I. 135 L. 151

Answers to CE Article Test #2, March 1997

The continuing education article "Cancer Imaging with Radiolabeled Antibodies" by Goldenberg, et al. was accompanied by a CE test. The correct answers are as follows. In this test, questions U., V. and W. were not scored because the units used in the answers (mg/ml) did not correspond with those given in the text (ng/ml).

- N. 159 Q. 174 T. 183 W. N/A Z. 207
 O. 164 R. 176 U. N/A X. 204
 P. 169 S. 182 V. N/A Y. 205

Answers to CE Article Test #3, March 1997

The continuing education article "Caring for the Older Patient, Part I" by Dowd, et al. was accompanied by a CE test. The correct answers are as follows. In this test, question OO. was not scored because both 258. and 259. are correct.

- AA. 209 DD. 221 GG. 229 JJ. 241 MM.252
 BB. 214 EE. 224 HH. 233 KK. 244 NN. 256
 CC. 216 FF. 225 II. 238 LL. 247 OO. N/A

CONTINUING EDUCATION TESTS #1 and #2

Answer Sheet

101	111	121	131	141	151	161	171	181	191	201	211	221	231	241
102	112	122	132	142	152	162	172	182	192	202	212	222	232	242
103	113	123	133	143	153	163	173	183	193	203	213	223	233	243
104	114	124	134	144	154	164	174	184	194	204	214	224	234	244
105	115	125	135	145	155	165	175	185	195	205	215	225	235	245
106	116	126	136	146	156	166	176	186	196	206	216	226	236	246
107	117	127	137	147	157	167	177	187	197	207	217	227	237	247
108	118	128	138	148	158	168	178	188	198	208	218	228	238	248
109	119	129	139	149	159	169	179	189	199	209	219	229	239	249
110	120	130	140	150	160	170	180	190	200	210	220	230	240	250

Name _____ Title _____

Hospital or Facility _____ Dept. _____

Street Address _____

City _____ State _____ Zip _____ Phone (____) _____

VOICE No. _____ Or please check one: NMVTP participant (no fee required) Nonmember—\$10 check or money order enclosed

Return a copy of this answer sheet no later than August 15, 1997 to:
 Continuing Education Coordinator, *Journal of Nuclear Medicine Technology*
 Marcia Ferg, The Society of Nuclear Medicine, 1850 Samuel Morse Dr., Reston, VA 20190.
 FAX: 703-708-9015.