**ST MARY’S UNIVERSITY**

**TWICKENHAM, LONDON**

BSc Sport Rehabilitation

Level **FOUR**

Title**: Clinical Assessment of Neuromusculoskeletal Injury**

Code: **SRE4012**

Semester: **TWO**

Date: **May 17th 2019**

Time: **9:30 – 11:30 AM**

TIME ALLOWED: **TWO** HOURS

**Section 1:**

Answer **ALL** of the multiple choice questions in your answer booklet.

1. The process of converting soft callus to hard callus is called:
2. Endochondral ossification
3. Direct bone healing
4. Secondary bone fracture
5. Exochondral ossification
6. Fibrillation is a feature of:
7. Synovitis
8. Early osteoarthritis
9. Labral tears
10. Ligament ruptures
11. Proteoglycans are:
12. Strong under tension
13. Cells located in cartilage
14. Precursors to chondrocytes
15. Hydrophilic
16. Fracture malunion usually occurs due to:
17. Optimal immobilisation
18. Failed reduction
19. Fixation under anaesthetic
20. Muscle atrophy
21. Angiogenesis occurs in which phase of healing?
22. Inflammation
23. Haematoma formation
24. Remodelling
25. Proliferation
26. Which of these best describes avascular necrosis?
27. Cell renewal
28. Cell or tissue death from lack of blood supply
29. Programmed cell death
30. Cell multiplication
31. Which individuals are at higher risk of adhesive capsulitis of the shoulder?
32. Adolescents
33. Male adults
34. Female middle aged adults
35. Younger children
36. What is the sequence of normal bone fracture healing?
37. Haematoma, inflammation, remodelling
38. Haematoma, inflammation, hard callus formation, soft callus formation, remodelling
39. Inflammation, proliferation, remodelling
40. Haematoma, inflammation, soft callus formation, hard callus formation, remodelling
41. What are the cardinal signs of inflammation?
42. Pain, swelling, heat, loss of function, redness
43. Pain, bruising, loss of range, redness
44. Pain, weakness, swelling, heat redness
45. Pain, redness, swelling, heat
46. What occurs immediately after traumatic cartilage damage?
47. Chronic inflammation
48. Bruising
49. Eburnation
50. Chondrocyte response
51. What replaces damaged cartilage?
52. Blood vessels
53. Stronger fibrocartilage
54. Weaker fibrocartilage
55. All of the above
56. What is Grade 4 cartilage damage in the Outerbridge grading system?
57. Exposed subchondral bone
58. Lesion of less than 1cm diameter
59. Softening of cartilage locally
60. All of the above
61. Immobilisation of a joint results in:
62. Inflammation
63. Chondrocyte proliferation
64. Increased blood vessels
65. Loss of proteoglycans
66. What is fibrillation?
67. The positive response to optimal load on cartilage
68. Flaking of the surface of hyaline articular cartilage
69. Damage to subchondral bone
70. Loss of synovium
71. What is eburnation of a joint evidenced by?
72. Sclerosis of the joint surface
73. Superficial surface fissuring
74. Softening of the joint surface
75. All of the above
76. Which of these is a feature of Osteoarthritis?
77. Muscle hypertrophy
78. Numbness
79. Osteophytic lipping
80. Hypermobility
81. Which of these is not a feature of osteoarthritis?
82. Thinning of the synovial membrane
83. Subchondral cysts
84. Thickened capsule
85. Reduced synovial space
86. Which of these is not a clinical feature of osteoarthritis?
87. Pain
88. Loss of joint position sense
89. Muscle hypertrophy
90. Crepitus
91. Which best describes the effects of synovitis?
92. Microfractures
93. Synovial thickening and hyperaemia
94. Paraesthesia
95. All of the above
96. What is the usual timescale for inflammation to occur?
97. 3-6 weeks
98. 0-3 days
99. 0-3 hours
100. Several months
101. What is the usual timescale for proliferation?
102. Several weeks
103. Several days
104. Several hours
105. Several months
106. What are the main cells involved in resolving the bleeding phase?
107. Fibroblasts
108. White blood cells
109. Platelets
110. Fibrin
111. What are the main cells active in the proliferation phase?
112. Osteoclasts
113. Fibroblasts
114. Platelets
115. Erythrocytes
116. What is the main function of fibroblasts in tissue repair?
117. Collagen production in the proliferative phase
118. Collagen production in the inflammatory phase
119. To resorb collagen type 2
120. To lay down fibrin
121. What occurs in the remodelling phase of healing?
122. Connective tissue reorganisation depending on load
123. Collagen type 3 resorption
124. Fibroblasts lay down collagen type 1
125. All of the above
126. What is involved in clot formation?
127. Release of chemical mediators
128. Conversion of fibrinogen to fibrin
129. Adhesion and aggregation of platelets to damaged endothelium
130. All of the above
131. Which of these statements is true about phagocytosis?
132. Platelets perform phagocytosis
133. It involves apoptosis of debris
134. It occurs in the inflammatory phase
135. All of the above
136. Angiogenesis occurs as a results of:
137. Haemostasis
138. low tissue oxidation
139. high tissue oxidation
140. apoptosis
141. What are the potential outcomes of inflammation?
142. Fibrosis
143. Chronic inflammation
144. Resolution
145. All of the above
146. Inflammation of the tendon sheath is referred to as:
147. Tendinopathy
148. Tenosynovitis
149. Tendinitis
150. Tendon rupture
151. Which of the following is a symptom of tendinopathy?
152. Crepitus
153. Bruising
154. Pain in the morning
155. Swelling
156. What is the basic process of muscle healing?
157. Degeneration and remodelling
158. Necrosis, regeneration, remodelling and maturation
159. Inflammation, proliferation and regeneration
160. None of the above
161. What are the primary cells involved in muscle regeneration?
162. Fibroblasts
163. Osteoblasts
164. Satellite cells
165. White blood cells
166. What are the features of satellite cells?
167. Mononuclear
168. Normally quiescent
169. Precursors to myoblasts
170. All of the above
171. What is myositis ossificans?
172. A developmental disease of the bones
173. Boney growth within a joint
174. Calcification of muscle tissue
175. Muscle growth within bone
176. What is a tendon avulsion?
177. A mild strain
178. Follows Delayed Onset Muscle Soreness
179. A complete rupture of a tendon from the bone
180. A partial rupture
181. What is the effect of scar tissue on muscle function in the long term?
182. Hypertrophy
183. Increases tensile strength
184. It makes it structurally stronger
185. It restricts fibres, nerves and vessels
186. Bone remodelling is dependent on:
187. Hormones
188. Nutrition
189. Loading
190. All of the above
191. What is the function of osteoclasts?
192. Hormonal control
193. To build bone
194. Bone resorption
195. All of the above
196. What is “FOOSH” clinical short hand for?
197. Fracture of origin of scaphoid in the hand
198. Fracture of open shaft of humerus
199. Fall on other side of hand
200. Fall on out stretched hand

**Section 2**

Answer **ALL** of the questions.

1. Describe the four phases of the healing process (20)
2. List five factors that affect healing (5)
3. What are the 5 D’s when referring to symptoms of a stroke? (5)
4. Give five examples of yellow flags in relation to back pain. (5)
5. Explain the use of “SIN” in the subjective assessment when formulating a clinical impression. (10)
6. Describe the grading system of ligament injury (10)
7. List five potential complications of bone fracture (5)

**END OF EXAMINATION**