

**KENYA MEDICAL TRAINING COLLEGE**

**FACULTY OF CLINICAL SCIENCES**

**DEPARTMENT OF ORTHOPAEDIC & TRAUMA MEDICINE**

**FINAL QUALIFYING EXAMINATION**

**FOR**

**DIPLOMA IN ORTHOPAEDIC & TRAUMA MEDICINE**

**PAPER: CASTING TECHNIQUES.**

**DATE: TIME: 3 HOURS (9:00AM – 12:00NOON)**

**INSTRUCTIONS**

1. This paper consists of:

* Section 1 (40 Multiple Choice Questions)
* Section 2 (8 Short Answer Questions)
* Section 3 (1 Long Answer Question)

1. Attempt **ALL** Questions
2. Write the EXAMINATION **NUMBER** given on all the answer sheets provided and on the question paper.
3. Ensure that all examination answer scripts are handed in at the end of the examination
4. Ensure you sign the examination register provided

EXAMINATION NUMBER ………………………………………………………………

**SECTION ONE: MULTIPLE CHOICE QUESTIONS (40 Marks)**

1. **Long arm casts usually begin at the middle of the humerus, extends down the arm, and ends at the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. Base of the wrist
3. Base of fingers
4. End of the fingers
5. Mid-point of the forearm
6. **A fracture to which of the following fingers would most likely require an ulna gutter splint**
7. Pinky fingers
8. Pointer fingers
9. Thumb
10. **Besides fractures, what other types of finger injury is likely to require the use of ulna gutter or radial gutter splint**
11. Blood clots
12. Severe sprains
13. Tendinitis
14. Carpal tunnel syndrome
15. **When doing plaster casting , the following statement is true**
16. Bonny prominences are covered with wool
17. Stockinette and wool must be always be used
18. One layer of wool is recommended
19. Circular cast is advisable in posterior slab where no swelling of the limb is anticipated
20. **Which one is not a feature of arterial obstruction of to a casted limb?**
21. Paralysis of fingers or toes
22. Paresthesia of fingers and toes
23. Pallor of the skin with disturbed capillary return
24. Severe pain at the fracture site
25. **Which of the following is true for casting of below knee with a swelling**
26. Back-slab covers whole limb circumference
27. Partial cast is applied on the limb
28. Spica is always used
29. External fixator applied
30. **The purpose of reducing the elbow joint using the ‘100-900’ tricky is to:**
31. Reduce paint at the elbow joint.
32. Avoid creasing of the cast at the elbow joint.
33. To make the fracture heal faster
34. To enhance healing of the fracture.
35. **Mallet finger splints are used for avulsions of extensor tendon. Which of the following describes this type of injury?**
36. Tendon detaches from the bone
37. Tendon becomes weak
38. Tendon becomes inflamed
39. Tendon is stretched out
40. **A lady presents with swelling of hands with shiny skin. She had a history of fracture of radius and kept on P.O.P cast for 4 weeks. The most likely diagnosis is?**
41. Malunion
42. Myositis ossificans progressiva
43. Reflex sympathetic syndrome
44. Rupture of extensor pollicis longus tendon
45. **Which of the following is not an advantage of fiber glass cast?**
46. Fiber glass cast will retain its structural integrity in water
47. Fiber glass cast is light weight yet strong
48. Fiber glass cast will not expand to accommodate any swelling
49. Fiber glass cast comes in many colours
50. **Thumb spica splints are commonly used for injured thumbs and are usually worn until\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
51. Swelling of injury goes away
52. Injury is completely healed
53. A person regains feeling in the thumb
54. A person can move their thumb
55. **Which of the following types of finger splint is applied to only the tip of the finger**
56. Buddy taping
57. Finger spica splint
58. Dorsal extension-block splint
59. U-shaped splint
60. **During cast removal, the patient may get injuries from the cast saw blade due to the following reasons EXCEPT**
61. Dragging the blade up and down motions
62. Blood stained casts
63. Due to edema
64. Resin based materials
65. **A cast is usually wedged to do which of the following:**
66. Relieve swelling
67. Properly align a reduced-displaced fractured bone
68. Reduce skin irritation
69. Permit suture removal
70. **Which of the following is NOT one of the signs and symptoms of cast sores?**
71. Local heat.
72. Loose cast.
73. Burning sensation.
74. Offensive smell.
75. **Patients with knee injuries will benefit from which of the following treatments?**
76. Rest, ice, compression, elevation
77. Hiking, ice, long term splint use, sunlight
78. Rest, traction, massage therapy, gait therapy
79. Heat, exercise, water therapy, pain medication
80. **Cylinder cast is indicated to the following conditions EXCEPT**
81. Malleoli fracture
82. Knee dislocations
83. Patella fractures
84. Knee sprains
85. **Both posterior ankle splints and bulky Jones splints are used for fractures of the malleolus. What is malleolus?**
86. A bone in the middle of the foot
87. The bone at the base of the big toe
88. The round bone that sticks out from the sides of the ankle joint
89. The bone that makes up the heel of the foot
90. **Which situation would a splint NOT be the best choice for treatment**
91. A patient with finger dislocation
92. A patient with non-displaced , closed fracture
93. A patient with a sprained ankle joint
94. A patient with tendonitis of the elbow.
95. **In a minimally displaced fracture of the proximal humerus with impacted fragments, the major treatment is:**
96. Immobilization in hanging arm cast
97. Immobilization in an elevated cast
98. Immobilization with a sling and swathe
99. Immobilization in a U-slab
100. **The Dennis Browne splint is used in the treatment of:**
101. Clubfeet
102. Torticollis
103. Springe’s deformity
104. Brachial palsy.
105. **In which situation would a cast be the treatment of choice on the day of injury**
106. A patient with a closed, non-displaced fracture
107. A patient with a displaced fracture requiring reduction
108. A patient with an open fracture
109. A patient with a compound fracture requiring surgery
110. **The following is not a physical property of plaster of Paris.**
111. Creamy.
112. White in colour.
113. Easily moudable.
114. Comes in many colours.
115. **When long arm casts are applied, the elbow joint is usually bent at \_\_\_\_\_\_degrees.**
116. 450
117. 600
118. 900
119. 1200
120. **Which type of cast will you apply on a dislocated-reduced elbow joint?**
121. Hanging cast.
122. Above elbow posterior slab.
123. Above elbow cast.
124. U-slab
125. **What is the reason for applying P.O.P cast diagonally?**
126. To have a firm cast.
127. To prevent cast breakages.
128. To avoid tourniqueting the limb
129. To increase the strength of the cast.
130. **Which are not the possible areas of applying reinforcement sticks on casts?**
131. At knee joint of above the knee cast.
132. At the hip joint of hip spicas.
133. At the level of fracture site on the cast.
134. Along the shafts of the bones.
135. **Short arm casts are frequently used for Colle’s fractures. Where do Colle’s fractures occur?**
136. On the radius near the wrist
137. On the radius near the elbow
138. On the ulna near the elbow
139. On the ulna near the wrist
140. **Which of the following is a benefit of treatment using a splint**
141. Splints are water proof, so that one may continue with their daily swimming
142. Splints permit swelling, thereby reducing the risk of neurovascular compromise
143. Splints cannot be removed, providing a constant stable environment for healing
144. Splints can be removed, so that the patient can put it on and off as much as they want
145. **Which of the following is NOT a feature of arterial obstruction of a limb in a cast?**
146. Palor of the skin with disturbed capillary return
147. Paralysis of the fingers or toes
148. Severe pain at the fracture site
149. Paresthesia of the fingers or toes
150. **The following are factors affecting setting time of P.O.P EXCEPT?**
151. Temperature of water
152. Thickness of the cast
153. Type of p.o.P
154. Alignment of the bone fragments
155. **Which among the following is not an indication of applying a P.O.P cast?**
156. Allow for swelling to subside
157. Relief pain
158. Prevent further trauma
159. Provide immobilization
160. **The following are disadvantages of using P.O.P EXCEPT**
161. It is cheap
162. Causes stiffness of joints
163. Causes circulatory catastrophes
164. Causes pressure sores
165. **As an orthopaedic and plaster technician in the orthopaedic ward, which among the following roles does NOT fall under your docket?**
166. Removal of traction
167. Application of casts
168. Conducting ward rounds
169. Education of patients and staffs
170. **A fracture must be reduced;**
171. During P.O.P removal
172. Before immobilization
173. After P.O.P application
174. During P.O.P application
175. **During history taking and specifically when examining the skin we check for the following, EXCEPT?**
176. Scars or sinuses
177. Cyanosis
178. Deformity
179. Color and texture of the skin
180. **Which of the following is the appropriate procedure of treating C.T.E.V non-operatively?**
181. Below knee P.O.P cast
182. Metal splints
183. Serial casting
184. Adhesive strapping
185. **There are four (4) major categories of casts, which of the following is NOT among?**
186. Spica casts
187. Upper extremities
188. Skull casts
189. Lower extremities
190. **Which of the following is not a chemical property of P.O.P?**
191. It reacts with water to form hydrated calcium sulphate
192. The reaction is exothermic
193. Porous
194. Gypsum crystals are needle shaped
195. **Below are physical properties of P.O.P EXCEPT?**
196. Comparatively light
197. Porous
198. Soaks rapidly
199. Bond by covalent interlocking bond

**SECTION B: SHORT ANSWER QUESTIONS (40 Marks)**

* + - 1. Explain the process of applying a heel pad on a cast **(5 marks)**
      2. List five things to check on a plaster bandage before using it **(5 marks)**
      3. List five supportive appliances for use by a patient to bear weight while on a cast **(5 marks)**
      4. Draw a well labeled diagram of an above knee cast indicating joint angles. **(5 marks)**
      5. Describe the neutral position of the following joints. **(5 marks)**
  1. Hip joint
  2. Knee joint
  3. Elbow joint
  4. Wrist joint
  5. Ankle joint
  6. Differentiate between windowing and bivalving of a cast **(5 marks)**
  7. List five types of external splintages **(5 marks)**
  8. Explain the use of mouldable alluminium splints at the accident and emergency department **(5 marks)**

**SECTION C: LONG ANSWER QUESTIONS (20 Marks)**

* + - 1. Discuss in a step by step process of applying full hip spica. 20 marks