

**KENYA MEDICAL TRAINING COLLEGE**

**FACULTY OF CLINICAL SCIENCES**

**DEPARTMENT OF ORTHOPAEDIC & TRAUMA MEDICINE**

**FINAL QUALIFYING EXAMINATION**

**FOR**

**CERTIFICATE IN ORTHOPAEDIC PLASTER TECHNOLOGY**

**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. **Which one is NOT a reason for flexing the knee at 150 when applying a long leg cast?**
2. To facilitate walking
3. To prevent movement of the knee joint
4. To avoid joint stiffness
5. To put joint in the functional position
6. **Which of the following is NOT a Principle for application of plaster of Paris?**
7. Joint below and above should not be included.
8. Joints should be mobilized in anatomical position.
9. Mould with the palm of the hands and fingers.
10. Dip plaster roll in water until the bubbles ceases**.**
11. **Which factor does NOT increase the setting time of P.O.P. cast?**
12. Cold environment
13. Hot water
14. Inadequate air circulation
15. Cold water
16. **One of the following is NOT an Indication for above knee cast**
17. Proximal tibial fractures
18. Ankle dislocations
19. Serial casting deformities
20. Some distal femur fractures
21. **Hip Spica is best applied to:**
22. Shaft femur fractures in children
23. Shaft femur fractures.
24. Fracture neck of femur in adults.
25. Distal femur fractures
26. **Padding during dynacast application is done due to the following EXCEPT:**
27. Protect bony prominences
28. Is applied where swelling is anticipated
29. Increases pain comfort.
30. Strengthens the fracture site.
31. **Which one of the following is NOT an Indication for a U - slab**
32. Fracture upper humerus
33. Fracture neck humerus
34. Fracture shaft radius
35. Fracture shaft humerus.
36. **The commonest complication of plaster of Paris in management of fractures is?**
37. Non-union
38. Mal-union
39. Joint stiffness
40. Deep venous thrombosis
41. **Which of the following is NOT the use of casts?**
42. Correct deformities
43. Support and mobilize joints.
44. Support fractured bones.
45. Make negative moulds of parts of the body.
46. **Indication for circumferential casting is:**
47. Severe swelling
48. Compartment syndrome
49. Closed fractures.
50. Insensate limbs.
51. **Skin injury from the cast saw is more UNLIKELY in:**
52. A wet cast.
53. Patients with fragile skin like babies and the elderly.
54. Burns from oscillator machine.
55. Badly applied cast**.**
56. **Sermiato cast is**
57. Suitable for fresh fractures.
58. Suitable for femur fractures only.
59. Suitable for walking cast.
60. Surgical method of fracture treatment.
61. **Which of the following is NOT Cast removal equipment.**
62. Cast spreader
63. Plaster Lorenz.
64. Plaster bender
65. Plaster knife
66. **Which one of the following is NOT a reason why Casts can be removed earlier than expected:**
67. To allow for wound dressings
68. To examine a painful area
69. To check fracture healing
70. To relieve pressure.
71. **An ideal cast should NOT be:**
72. Inflammable and non-toxic
73. Light in weight and well fitting
74. Very loose to prevent pressure sores.
75. Functional.
76. **Which of the following is the BEST management for un-displaced clavicle fractures?**
77. Co-arbitration cast
78. Hanging cast
79. Shoulder Spica cast
80. Arm-sling
81. **Which one of the following is NOT a reason why patients get injuries from cast saw blade during cast removal?**
82. Dragging the blade up and down motions
83. Blood stained casts
84. Presence of edema or swelling
85. Resin based materials
86. **After skin care during cast removal include:**
87. Removing the scaly skin
88. Encourage the patient to expose the skin to the sun
89. Wash, dry and oil or cream the skin.
90. Re-apply cast.
91. **Which is NOT COMMONEST cause of pressure or cast sores.**
92. Foreign objects in the casts.
93. Edema.
94. Even bandaging techniques.
95. Fiberglass casts
96. **Which of the following is NOT a Clinical feature of cast sores?**
97. Local heat.
98. Loose cast.
99. Burning pain.
100. Offensive smell.
101. **Improper cast length can result in**
102. Unnecessary immobilization of the joints
103. Ulceration at the edge of the cast
104. Fracture just above or below the cast
105. All of the above
106. **Which statement is NOT true about plaster sores?**
107. Patient should be advised to use foreign objects to scratch
108. There is precipitation of the heat
109. There is purulent discharge
110. Patient complains of pain
111. **During casting:**
112. Bonny prominences are covered with wool
113. Stockinet and wool must be always be used
114. One layer of wool is recommended
115. Circular cast is advisable in posterior slab where no swelling of the limb is anticipated
116. **Which one is not a feature of arterial obstruction of to a casted limb?**
117. Paralysis of fingers or toes
118. Paresthesia of fingers and toes
119. Pallor of the skin with disturbed capillary return
120. **Severe pain at the fracture site**
121. **Which of the following is true for casting of below knee with a swelling**
122. Back-slab covers whole limb circumference
123. Partial cast is applied on the limb
124. Spica is always used
125. External fixator applied
126. **Which of the following is NOT an indication of bivalving a cast?**
127. To facilitate daily dressing of a wound in a cast.
128. When the swelling of the affected limb has subsided
129. Underlying edema.
130. Itchy cast.
131. **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?**
132. Malunion
133. Myositis ossificans progressiva
134. Reflex sympathetic syndrome
135. Rupture of extensor pollicis longus tendon
136. **Which of the following is NOT an advantage of fiber glass cast?**
137. Fiber glass cast will retain its structural integrity in water
138. Fiber glass cast is light weight yet strong
139. Fiber glass cast will not expand to accommodate any swelling
140. Fiber glass cast comes in many colours
141. **Which of the following is NOT an effect of immobilizing joints wrongly?**
142. Fracture displacement
143. Neurovascular injury
144. Loss of joint movement
145. Early healing of fracture
146. **Indications for above knee cast are as follows EXCEPT**
147. proximal tibial fractures
148. ankle dislocations
149. serial casting deformities
150. Some distal femur fractures.
151. **Which of the following factors decreases the setting time:**
152. Cold weather.
153. Cold water.
154. Sugar.
155. Borax.
156. **A cast is usually wedged to do which of the following:**
157. Relieve swelling
158. Properly align a reduced-displaced fractured bone
159. Reduce skin irritation
160. Permit suture removal
161. **Which of the following is NOT one of the signs and symptoms of cast sores?**
162. Local heat.
163. Loose cast.
164. Burning sensation.
165. Offensive smell.
166. **Cylinder cast is indicated to the following conditions EXCEPT**
167. Malleoli fracture
168. Knee dislocations
169. Patella fractures
170. Knee sprains
171. **Casting spreader is used for**
172. Opening up cervical collar
173. Plaster application
174. Opening up casts
175. None of the above
176. **During physical examination of a patient before casting the following clinical methods are observed except**
177. Abrasions
178. Scars
179. Sinuses
180. Pain
181. **In a minimally displaced fracture of the proximal humerus with impacted fragments, the major treatment is:**
182. Immobilization in hanging arm cast
183. Immobilization in an elevated cast
184. Immobilization with a sling and swathe
185. Immobilization in a U-slab
186. **The Dennis Browne splint is used in the treatment of:**
187. Clubfeet
188. Torticollis
189. Springe’s deformity
190. Brachial palsy.
191. **Which of the following statement is NOT correct about cast setting:**
192. Setting time: time taken to change from powder form to crystalline form.
193. Drying time: time taken to change from crystalline form to anhydrous form.
194. Average setting time: 3-9 minutes.
195. Average drying time: 24 – 72 days.
196. **The following is not a physical property of plaster of Paris.**
197. Creamy.
198. White in colour.
199. Easily moudable.
200. Comes in many colours.

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

1. Outline five factors that affect setting time and drying time of plaster of Paris **(5 Marks)**
2. List five disadvantages of plaster of Paris **(5 Marks)**
3. List five most likely reasons for plaster sore development **(5 Marks)**
4. List five disadvantages of using synthetic casting tape **(5 Marks)**
5. List five clinical features a patient is supposed to observe after P.O.P application. **(5 Marks)**
6. List Five indications of long arm cast. **(5 Marks)**
7. Calculate the chemical formulae of P.O.P **(5 Marks)**
8. Outline five characteristics of P.O.P **(5 Marks)**

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

1. Explain in a step by step process of applying a long leg cast **(20 marks)**