Rajiv Gandhi University of Health Sciences, Karnataka

First Year Bachelor in Prosthetics and Orthotics Degree Examination – OCT-2019

Time: Three Hours **Max. Marks: 80 Marks**

Biomechanics - I (RS3)

Q.P. CODE: 2965

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

ESSAYS TYPE (answer any Two) **2 x 10 = 20 Marks**

1. Define bone and ligaments. Explain the mechanical properties of bone and tendons.
2. Bio mechanics of AFO.
3. What is lever system in biomechanics? Describe in details various types of lever systems found in human body with neat sketch and their mechanical advantages.

SHORT ESSAYS TYPE (answer any Six) **6 X 5 = 30 Marks**

4. Differentiate between tibial guard fracture brace and PTB fracture brace.
5. What do you mean by cardinal planes? Explain in short about each plane.
6. Rockers of gait.
7. Pronation twist vs supination twist
8. Windlash mechanism
9. Explain with diagram medial thrust and lateral thrust and write down its causes.
10. What is kinetics and kinematics? Write down its branches.
11. Make a note on biomechanics of PTB socket.

SHORT ANSWERS TYPE (answer any Ten) **10 x 3 = 30 Marks**

12. Transverse arch of foot
13. What is loose pack close pack positions. Explain with example.
14. Draw neat diagram of high profile prosthesis for chopart's amputee. Depict the force system acting on the prosthesis at heel strike phase of gait.
15. Differentiate between mechanics and biomechanics
16. Make a note on moment and torque
17. In a gait cycle, if your left leg has completed 37% of the gait cycle then your left leg will be in which phase of gait?
18. What is the biomechanics of providing ankle Dorsiflexion in an AFO?
19. Draw neat sketch of articulated AFO with PU hinge and write its indications.
20. Differentiate between biomechanics and kinesiology
21. Write down the location of each components of metallic AFO.
22. Differentiate between Center of gravity and center of pressure
23. Differentiate between close kinematic chain and open kinematic chain with diagram.

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