Rajiv Gandhi University of Health Sciences, Karnataka

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

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

BIOMECHANICS - II (RS3)

Q.P. CODE: 2972

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. Describe the kinetics & kinematics analysis of knee joint.
2. Illustrate the alignment of orthotic hip, knee and ankle joint in frontal, sagittal and transverse plane.
3. Explain the Quadrilateral socket biomechanics of transfemoral prosthesis.

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

4. Explain the force system use to correct/prevent Anterior & posterior cruciate ligament laxity with neat diagram.
5. What is the effect of quadriceps weakness in standing and walking?
6. Write a note on how excessive lateral thrust can be corrected in trans-tibial prosthesis by means of alignment. Explain with neat sketch.
7. Write note on lateral trunk bending in tran-femoral prosthesis and related biomechanics for correction of the gait deviation.
8. What is ankle plantar flexion-knee extension couple? Explain with diagram.
9. Define EMG and its use in Prosthetics and Orthotics
10. Explain the biomechanical principle involved in total contact socket.
11. Explain about energy storing prosthetic foot biomechanics.

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

12. What is Q-angle? How is it measured?
13. What is zone of weakness in femur?
14. Make a note on role of abductors in Transfemoral prosthesis.
15. Write the name of all type pathological gait deviations in transitional prosthesis.
16. Make a note on joint reaction force.
17. Explain the Biomechanics of Floor reaction Orthosis (FRO).
18. What is screw home mechanism?
19. Explain TKA alignment with neat sketch.
20. Biomechanics of through knee prosthesis at swing phase.Only with neat sketch explain the forces.
21. Explain the force system to correct the Genu Valgum deformity.
22. List out the gait observe in case of Dorsiflexor muscle weakness.
23. Draw a neat diagram of KAFO and depict the corrective forces for knee flexor tightness.

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