

**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH**  
(A DEEMED TO BE UNIVERSITY)

**Bachelor of Physiotherapy (CBCS)**  
**First Year Semester-II March 2023 Examination**

**Time: 3.00 Hrs.**

**[Max. Marks: 100]**

**BIOMECHANICS**  
**Q.P Code: B2030**

*Your answers should be specific to the questions asked.*

*Draw neat labelled diagrams wherever necessary.*

**LONG ESSAY (Answer any Two)**

**2 X 10 = 20 Marks**

1. What is the functional position of hand? Add note on power grips (7+3)
2. Describe the features of proximal and distal articular structure of hip joint with neat diagram. Add a note on kinematics of hip joint. (6+4)
3. Define postural synergies or strategies. Explain different types of synergies in postural control

**SHORT ESSAY (Answer any Ten)**

**10 X 5 = 50 Marks**

4. Describe the osteo and arthro kinematics of shoulder complex.
5. Explain the phases of gait
6. Explain in details about the scapula humeral Rhythm during elevation through abduction of shoulder complex.
7. Describe Lumbo-pelvic rhythm
8. Explain locking and unlocking of knee joint
9. Discuss the load deformation & stress relaxation properties of connective tissues.
10. Write about the kinematics of patella femoral joint
11. Compare and contrast different types of muscle contraction
12. Describe precision and its types
13. Write about the kinematics of ankle complex
14. Explain the kinematics of joints of cervical region
15. Describe the kinematics of joints of 1<sup>st</sup> CMC, MCP, IP joints of thumb

**SHORT ANSWER (Answer any Ten)**

**10 X 3 = 30 Marks**

16. Define Carrying angle and give its importance
17. Define agonist and synergist
18. What is the resting position of scapula
19. Explain bucket handle movement in rib cage.
20. What are the 3 condition for equilibrium
21. Define closed & open kinematic chain
22. Define active and passive insufficiency
23. Give the types and uses of plantar arches.
24. Define Q angle.
25. Define ground reaction force and center of pressure
26. Define cadence and angle of toe out.
27. Define coupled motion in vertebral column