

BIOMECHANICS

Time: 3 hrs

Max marks : 100

- Answer all questions
- Draw diagrams wherever necessary

Essays

(2x10=20)

1. Explain in detail the kinetics and kinematics of the cervical spine
2. Briefly describe the structural components of the hip joint and explain the role of hip abductors in unilateral stance

Short notes

(10x5=50)

3. Describe scapulohumeral rhythm
4. Explain in detail the biomechanics of throwing
5. Explain active and passive insufficiency with hamstring muscle as an example
6. How third order lever is converted into second order lever. Explain with an example
7. Tabulate the arthrokinematics of all the movements of the knee joint
8. Screw home mechanism of the knee
9. Explain various phases of the gait cycle
10. Planes and axis
11. Explain the movements of the pelvic girdle
12. Open and closed kinematic chains

Answer briefly

(10x3=30)

13. Q angle
14. Concurrent forces
15. Define equilibrium
16. Define Newton's laws of motion
17. Extensor mechanism
18. Genu varum
19. Pronation twist
20. Concave convex rule
21. Torque and moment arm
22. Define elasticity
