[LP 1019] OCTOBER 2019 **Sub. Code: 3901**

P.G. DIPLOMA IN BIOMECHANICS & KINESIOLOGY IN SPORTS & FITNESS EXAMS

PAPER I – BIOMECHANICS

Q.P. Code : 363901

Time : Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain about Biomechanics of Shoulder complex.

2. Explain about the properties of connective tissue. What are the ways of Identifying stress and strain for tendons and ligaments?

II. Write notes on: **(10 x 6 = 60)**

1. Explain in detail about Linear and angular Motion.
2. Describe the External Forces Acting on a Joint.
3. What is the effect of Muscle size in the production of Force?
4. What is the relationship between force production and Motor Unit Recruitment in the Muscle?
5. Explain about stress –strain curve for tendons and ligaments.
6. What are the effects of Joint structure on its motion?
7. Define Torque. Explain about its properties.
8. What are the stabilisers and mobilisers of shoulder Joint?
9. What is the contribution of trunk muscles to sports skills?
10. What is the Environmental interaction for a joint?

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[AHS 0321] **MARCH 2021** **Sub. Code: 3901**

(OCTOBER 2020 EXAM SESSION)

POST GRADUATE DIPLOMA IN BIOMECHANICS AND KINESIOLOGY IN SPORTS AND FITNESS

(From 2018-2019 onwards)

PAPER I – BIOMECHANICS

Q.P. Code : 363901

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Analyze posture and explain the postural deviations.
2. Discuss in detail the articulating structure, osteokinematics and arthrokinematics of the tibiofemoral joint. Add a note on pathomechanics of knee joint

II. Write Short Notes on: **(10x6 = 60)**

1. Angulation of femur.
2. Explain the determinants of gait.
3. Mechanical stress and structural adaptation of femur
4. Squat lifting versus stoop lifting.
5. Function of intervertebral disc.
6. Describe coupled motions with two examples.
7. Reverse scapulohumeral rhythm.
8. Coxa valga and coxa vara.
9. Explain fixed support synergies with examples.
10. Synovial joint and its subdivision.

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[AHS 0921] **SEPTEMBER 2021** **Sub. Code: 3901**
(MAY 2021 EXAM SESSION)

POST GRADUATE DIPLOMA IN BIOMECHANICS AND KINESIOLOGY IN SPORTS AND FITNESS
(From 2018-2019 onwards)
PAPER I – BIOMECHANICS
Q.P. Code : 363901

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Discuss the biomechanical analysis of running gait versus walking.
2. Explain the structure configuration of hip joint in relation to weight bearing in unilateral and bilateral stance along with factors contributing for its stability.

II. Write Short Notes on: **(10x6 = 60)**

1. Locking and unlocking of knee
2. Osteokinematics and Arthrokinematics.
3. Active and Passive insufficiency
4. Isokinetic exercise.
5. Tennis and nurse – maid's Elbow.
6. Q angle of knee joint.
7. Describe dynamic stabilization of glenohumeral joint.
8. Ways to reduce the force acting on the femoral head.
9. Mechanical advantage - therapeutic use.
10. Power grip.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222] **FEBRUARY 2022** **Sub. Code: 3901**

(OCTOBER 2021 EXAM SESSION)

POST GRADUATE DIPLOMA IN BIOMECHANICS AND KINESIOLOGY IN SPORTS AND FITNESS

(From 2018-2019 onwards)

PAPER I – BIOMECHANICS

Q.P. Code : 363901

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Write in detail about Biomechanics of knee joint?
2. Explain in detail about Biomechanics of Throwing?

II. Write Short Notes on: **(10x6 = 60)**

1. Define torque, and discuss the characteristics of a torque?
2. Discuss the relationships between force, pressure, work, energy, and power?
3. Define stress, strain, elastic region, plastic region, yield point, failure point, and elastic modulus?
4. Describe the various reference systems, relative versus absolute?
5. List the factors that influence muscle strength?
6. Describe the scapula humeral rhythm?
7. Describe stress – strain curve for tendon and ligaments?
8. Explain Newton's Laws with Example?
9. Define Work, Power, Energy and Friction?
10. Describe angular and linear kinetics?

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