2019

SPORTS BIOMECHANICS AND KINESIOLOGY

Paper : MPCC - 202

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. What do you mean by Sports Biomechanics? Write down the importance of Sports Biomechanics in enhancing sport performance. Give two examples each for kinetic and kinematic parameter. 2+9+4

Or,

Explain the following terms : 5×3

(a) Statics and Dynamics

(b) Work and Energy

(c) Plane and Axis.

2. Write the importance of kinesiology in physical education and sport. Write down the origin, insertion and action of the following muscles : Pectoralis Major, Deltoid and Rectus Abdominis. 3+(4×3)

Or,

What do you mean by origin and insertion of muscles? Write down the origin, insertion and action of the following muscles : Sartorius, Quadriceps, Gastrocnemius. 3+(4×3)

3. Define body lever. Classify lever with suitable example. Explain the mechanical advantage of lever. 3+9+3

Or,

What do you mean by movement analysis? What are the various types of movement analysis used in Physical Education and Sports? Biomechanically analyze any one sports technique. 2+4+9

4. Write short notes on (***any two***) of the following : 7½×2

(a) Stability and Equilibrium

(b) Projectile motion

(c) Aerodynamics

(d) Video analysis of movement.

Please Turn Over

5. Answer ***any ten*** questions (put a tick against your answer) 1×10

(a) Etymological meaning of Kinesiology is

(i) Science of motion

(ii) The science of motion of human being during sports participation

(iii) The science of motion of living being

(iv) The science of motion of human being.

(b) Coronal plane divides the body into

(i) Front and back halves (ii) Left and right halves

(iii) Upper and lower halves (iv) Inner and outer halves.

(c) The movement called dorsiflexion occurs only in the

(i) Knee (ii) Shoulder

(iii) Ankle (iv) Hip.

(d) Mass and weight are two dimensions of a matter, in which

(i) Mass changes but weight remains unchanged

(ii) Mass is fixed but weight changes

(iii) Both mass and weight are fixed

(iv) Both mass and weight change.

(e) The scalar quantity has only

(i) Magnitude (ii) Direction

(iii) Both (iv) None.

(f) A muscle which flexes both hip and knee joint is

(i) Gluteus maximus (ii) Sartorius

(iii) Rectus femoris (iv) Biceps femoris.

(g) SI unit of pressure is

(i) Ohms (ii) Joules

(iii) Watts (iv) Pascal.

(h) Force acts on an object may change its

(i) Direction (ii) Shape

(iii) Speed (iv) All of the above.

(i) Which of the following questions about the long jump should be answered quantitatively?

(i) What is the horizontal velocity at take-off?

(ii) What is the angle of take-off?

(iii) Both (i) and (ii) (iv) None of the above.

(j) Sliding friction is ..... than/to rolling friction.

(i) Smaller (ii) Equal

(iii) Greater (iv) None of the above.

(k) If value of moment arm is zero, then torque produced will be

(i) 1 (ii) 0

(iii) Doubled (iv) Decreased

(l) What is the magnitude of momentum of a cricket ball of mass 520g thrown at $20ms^{-1}$?

(i) 104Ns (ii) 1.04Ns

(iii) 10.4Ns (iv) None.
