



Murugesu

Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD)
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor of Physical Education Degree Examination – May 2022 IV Semester

Class : II B.P.Ed.

Time : 3 Hours

Max. Marks : 100

18BPDC25 Kinesiology and Biomechanics

Course Outcomes:

- CO1: To know the basic concepts in biomechanics and kinesiology
- CO2: To know the scientific principles of body movements
- CO3: To understand mechanical analysis of movements
- CO4: To know about the muscles and joints with its application to levers
- CO5: To understand the concept of kinetics and kinematics
- CO6: To understand the mechanical concepts in movement analysis
- CO7: To know the effectiveness of human movement using mechanical principles

Part A

10 x 1 = 10

Choose the Correct Answer

1. The branch of mechanics concerned with bodies at rest and forces in equilibrium
a. Statics b. Dynamics c. Kinetics d. Kinematics **CO1 K1**
2. An invisible force that pulls objects toward each other is called
a. Gravity b. Centre of Gravity c. Line of Gravity d. Gravitational Force **CO2 K1**
3. A plane which is dividing the body into upper and lower section is called
a. Sagittal plane b. Coronal plane c. Transverse plane d. Frontal plane **CO2 K2**
4. Movement of an object along the circumference of a circle or rotation along a circular path is called
a. Linear Motion b. Curve Linear Motion c. Circular Motion d. Angular Motion **CO3 K3**
5. Law of counter-force is also called as
a. Newton's Law I b. Newton's Law II c. Newton's Law III d. Newton's Law - IV **CO3 K2**
6. A net force that acts on an object to keep it moving along a circular path
a. Centripetal Force b. Spin c. Buoyancy d. Pressure **CO4 K1**
7. Equation of the projectile motion is
a. $y = (\cos \theta)x - gx^2/2(v_0 \cos \theta)^2$
b. $y = (\tan \theta)x - gx^2/2(v_0 \cos \theta)^2$
c. $y = (\tan \theta)x - gx^2/2(v_0 \tan \theta)^2$
d. $y = (\tan \theta)x - gx^2/2(v_0 \sin \theta)^2$ **CO4 K4**
8. The ability to do work, which is the ability to exert a force causing displacement of an object is called
a. Displacement b. Energy c. Power d. Work **CO5 K3**
9. The vector sum of numerous forces, whose direction is opposite to the motion of a body is called
a. Force b. Resistance Force c. Unidirectional Force d. Applied Force **CO6 K3**
10. Cinematographic movement analysis deals with
a. Analysis using the data with muscle and biofeedback
b. Analysis using the data with bone, joints and video
c. Analysis using the data with force and camera
d. Analysis using the data with camera and video **CO7 K4**

Part B
Answer ALL questions
Each answer should not exceed 400 words or two pages

5 x 6 = 30

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| 11.a. Brief-out the importance of biomechanics for a physical education teacher. | CO1 K2 |
| (or) | |
| 11.b. Brief-out the importance of kinesiology for a physical education teacher. | CO2 K3 |
| 12.a. Mention the axes and planes with diagrams. | CO1 K3 |
| (or) | |
| 12.b. Discuss COG, LOG and BOS | CO2 K4 |
| 13.a. Enumerate the importance of good posture. | CO3 K5 |
| (or) | |
| 13.b. Discuss the newton's law of motion in sports activities. | CO3 K5 |
| 14.a. Discuss angular kinematics with examples. | CO4 K4 |
| (or) | |
| 14.b. Brief-out stability and Reciprocal innervation. | CO5 K5 |
| 15.a. Mention the mechanical principles involved in walking | CO6 K2 |
| (or) | |
| 15.b. Mention the mechanical principles involved in jumping | CO7 K2 |

Part C
Answer ALL questions
Each answer should not exceed 800 words or fourpages

5 x 12 = 60

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| 16.a. Explain equilibrium with examples. | CO1 K3 |
| (or) | |
| 16.b. Brief-out fundamental movement terminologies with examples. | CO1 K3 |
| 17.a. Explain the classification of joints. | CO2 K2 |
| (or) | |
| 17.b. Explain the types of muscular contraction with examples. | CO2 K4 |
| 18.a. Explain lever with reference to human body. | CO3 K5 |
| (or) | |
| 18.b. Explain the factors influencing the projectile trajectory with examples. | CO3 K4 |
| 19.a. Explain speed, velocity and acceleration with examples. | CO4 K3 |
| (or) | |
| 19.b. Explain inertia, mass and momentum with examples. | CO5 K3 |
| 20.a. What are locomotor, non-locomotor and manipulative skills? | CO6 K5 |
| (or) | |
| 20.b. Explain the mechanical principles involved in any two game of your choice. | CO7 K5 |
