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 (now MoE)
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – November 2025
V Semester

Class : III UG
Major : Physical Education

Time: 3 Hours
Max. Marks: 100

23BPEC17 Kinesiology and Biomechanics

Course Outcomes :

CO1: Understand the Skeletal structure of human body by identifying the origin and insertion of various muscles .
CO2: Orient the students in basic structure and functions of primary joints of the body
CO3: Relate and interpret the role of various mechanical principles in human movements.
CO4: Know the effectiveness of human movement using mechanical principles.
CO5: Develop physical conditioning programs based on scientific principles designed to develop physical fitness and improve athletic performance .

Part A

10 x 1 = 10

Choose the Correct Answer

1. Kinesiology involves — CO1K2
   a. Anatomy
   b. Biomechanics
   c. Physics
   d. All of these

2. The word Kinesiology was first used by — CO2K3
   a. Carl August Georgii
   b. Nils Posse
   c. Pehr Henrik Ling
   d. Bodo Rosonhaho

3. The longest muscle in the human body is — CO1K2
   a. Sartorius
   b. Iliopsoas
   c. Rectus femoris
   d. Biceps femoris

4. The main function of the Sartorius muscle is — CO2K3
   a. Knee flexion
   b. Hip flexion
   c. Knee & Hip flexion
   d. Knee flexion, Hip flexion & Abduction

5. The force which resists the motion of a ball is called — CO2K3
   a. Static friction
   b. Rolling friction
   c. Sliding friction
   d. Friction

6. In hammer throw, spinning the ball on a string is based on — CO3K2
   a. Centripetal force
   b. Centrifugal force
   c. Gravitational force
   d. Frictional force

7. The ability to control the equilibrium of an object is called — CO1K2
   a. Stability
   b. Balance
   c. Static equilibrium
   d. Kinesthetic ability

8. A corner kick in football involves which type of lever ? — CO3K3
   a. First order
   b. Second order
   c. Third order
   d. None of these

9. In the preparatory phase of javelin throw, the movement at the elbow is — CO4K3
   a. Extension
   b. Hyper-extension
   c. Slight extension
   d. Horizontal hyper-extension

10. The factor that most influences the equilibrium of an object is — CO2K4
    a. Centre of gravity in relation to its base
    b. Height of Centre of gravity in relation to base
    c. Centre of gravity in relation to resistance
    d. Centre of gravity of the object

=B3/100 x 10

Part B — 5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Write about Newton's Law of motion and its application to games and sports.	CO2K2
(or)	
11.b. Difference between kinesiology and biomechanics-Explain.	CO3K3
12.a. Describe about axis and planes for motion.	CO2K3
(or)	
12.b. List out the classifications of joints.	CO4K3
13.a. Write the origin, insertion and action of trapezius and soleus.	CO3K2
(or)	
13.b. Write the origin, insertion and action of gastrocnemius and pectoralis major.	CO2K3
14.a. Differentiate between kinetic and kinematics.	CO2K2
(or)	
14.b. Meaning of buoyancy –Write.	CO3K3
15.a. Write the application of using biomechanical principles in games and sports.	CO2K2
(or)	
15.b. Describe the biomechanical principle used in running and jumping.	CO3K3

Part C — 5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. Explain the need and importance of biomechanics in sports.	CO2K3
(or)	
16.b. Explain need and importance of kinesiology in physical activity.	CO4K4
17.a. Describe the meaning and types of muscular contraction.	CO3K4
(or)	
17.b. Brief the classification of bones and its movement.	CO2K3
18.a. List the muscles of the upper extremities and mention their functions briefly.	CO4K4
(or)	
18.b. Explain the origin, insertion and action of lower extremity muscles.	CO3K3
19.a. Discuss about lever and its types with examples.	CO2K4
(or)	
19.b. Elaborate Gait analysis and its application.	CO3K4
20.a. Explain the biomechanical analysis technique in your running.	CO2K3
(or)	
20.b. Describe quantitative and qualitative analysis with its application in biomechanics.	CO2K4

26 - One word incomplete

a/b not marked — Ragavi

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