

B.P.Ed. Examination, 2019
Semester-IV
Physical Education
Course : CC-402
(Kinesiology and Biomechanics)

Time : 3 Hours

Full Marks : 70

Questions are of value as indicated in the margin

Answer all questions as per the direction given in each unit.

UNIT - I

1. Define Kinesiology and Sports Biomechanics. Discuss the importance of Kinesiology and Sports Biomechanics for the improvement of sports performance. 2+2+11=15

Or

What is centre of gravity? How does line of gravity influence the stability of an individual? Discuss different planes and axes of the human body with the help of fundamental movements. 1+4+10=15

UNIT – II

2. What is a joint? Classify and discuss different types of joints of the human body. Illustrate synovial joint. 2+6+7=15

Or

What do you understand by the terms 'Angle of Pull', 'All or None law' and 'Reciprocal Innervation'? Discuss. 15

UNIT – III

3. State the Newton's Laws of Motion. Exemplify the application of Laws in sports movements. 6+9=15

Or

Discuss the functions of a mechanical Lever. What do you understand by 'Principles of a Lever'? Illustrate Lever from the human body. 5+5+5=15

UNIT – IV

4. Write notes on **any two** of the following: 7.5×2=15
- i) Linear and Angular Acceleration and their application in sports.
 - ii) Factors determine stability
 - iii) Mass and Momentum and their relationship
 - iv) Friction and its importance

UNIT - V

5. Write the correct answer from the following (**any ten**) : 10×1=10
- i) Symarthroses joints are a) immoveable joints b) movable joints
c) slightly movable joints d) None
 - ii) Shoulder inward rotation takes place in a) Frontal axis, sagittal plane
b) Frontal plane, Sagittal axis c) Vertical axis horizontal plane d) Sagittal axis, sagittal plane.

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- iii) In isometric contraction of a muscle a) tension remains constant b) speed of contraction remains constant c) length of the muscle remains constant d) speed of contraction and length both remain constant.
 - iv) For a given force greater the mass the acceleration will be a) Higher b) Lower c) Fractuate d) constant
 - v) Co-efficient of friction does not depend on (a) surface condition b) material makes up c) contact area d) Relative action
 - vi) One radium equals to a) 57.03° b) 57.3° c) 53.7° d) 54.3°
 - vii) The equation to express the relationship of linear and angular velocity is a) $w = vxr$ b) $v = wxr$ c) $v = w/r$ d) None
 - viii) Earth's value of gravity is slightly higher in (a) Poles b) equator c) Both in poles and equator d) remains constant.
 - ix) Hand stand is an example of a) Stable equilibrium b) Neutral equilibrium c) Not an example of equilibrium
 - x) The horizontal distance travelled by a projectile depends on a) speed of release b) angle of release c) height of release d) all
 - xi) In below threshold level action potential to a muscle a) All muscle fibres will contract b) Few muscle fibres will contract c) None of the muscle fibres will contract d) All motor units of the muscle will be activated
 - xii) Raising heels in an erect standing position is an example of a) First class lever b) Second class lever c) Third class lever d) Non-relative to any class of lever.
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