

B.P.Ed Examination, 2017
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 any one question from each unit

Unit I

1. Define kinesiology. What do you understand by the term 'Sports Biomechanics'? Discuss the role of kinesiology in Sports and Physical Education. 1+ 2+12=15

Or

What is center of gravity? What does line of gravity mean? Explain planes and axes of the human body with reference to the fundamental movement. 2+ 2+11=15

Unit II

2. What is a joint? Classify human joints according to their structure and movements. Illustrate synovial joint in detail. 2 + 3+ 10 = 15

Or

What is posture? Write down the causes of bad posture. What do 'angle of pull', 'all or none law' and 'reciprocal innervations' mean? 2 +4 +3 +3 +3 = 15

Unit III

3. Define force and lever. Classify lever with their characteristics. What does mechanical advantage of a lever mean? Illustrate human lever with examples from sports movements. 2+ 2+ 6+ 5 =15

Or

State Newton's laws of motion with their application in sports? What mechanical principles can be driven from Newton's second law? 8+7=15

Unit IV

4. Write short notes on **any two** of the following 7.5 x 2 = 15
i. Stability
ii. Linear and Angular acceleration
iii. Friction
iv. Momentum and moment of inertia

Unit V

5. Choose correct answer (**any ten**) 1 x 10=10
i. Sports biomechanics deals with
a) Causes of motion b) Effect of force c) Force and its effects d) All

P.T.O.

(2)

- ii. Synarthroses is
- a) Non-moveable joint b) Slightly moveable joint c) Freely moveable joint d) Not a joint
- iii) Third class lever develops
- a) Force b) Range of motion c) (a & b) d) None
- iv) Greater the stability relates to
- a) Higher the CG b) Lower the CG c) Wider the base of support d) a and c
- v) Distance and Displacement are
- a) Scalar quantity b) Vector quantity c) Vector and scalar d) Scalar and vector
- vi) Pectoralis major is a
- a) Cylindrical muscle b) Fusiform muscle c) Pennyform muscle d) Triangular muscle
- vii) Largest muscle in the human body is
- a) Sartorius b) Gluteus minimus c) Gluteus maximus d) Gastrocnemius
- viii) Triceps curls is the example of a lever that belongs to
- a) Class I b) Class II c) Class III d) None
- ix) Carrying a bucket of water is an example of
- a) Isotonic contraction b) Isometric contraction c) Isokinetic contraction d) Concentric
- x) For maximum range to cover the angle of projection shall be
- a) 45^0 b) 42^0 c) 38^0 d) 40^0
- xi) The relationship between angular and linear velocity is
- a) $v = w \times r$ b) $w = v \times r$ c) $v = w/r$ d) None
- xii) For a given height of release, the higher the speed of release the angle of release shall be
- a) Higher towards 45^0 b) Lower from 45^0 c) Constant d) Any value
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