MASTER OF PHYSICAL EDUCATION EXAMINATION, 2024

(1st Year, 2nd Semester)

SPORT BIOMECHANICS AND KINESIOLOGY

PAPER - MPCC- 202

Time : Three hours | Full Marks : 70

Group-A

Answer any three questions: **15 X 3=45**

1) Briefly mention the importance sports biomechanics to enhance sport performance. Explain the principles of stability with practical examples for executing sport movement. Describe five body movements with reference to plane and axis of the particular movement. 4+6+5=15

2) What are the statics and dynamics in mechanics? What is difference between kinetics and kinematics? Explain about linear and angular kinematics with equations. 4+3+8=15

3) Write down the origin and insertion of any four muscles of the human body. Explain kinesiological analysis of walking and running. 8+7=15

4. What are the different characteristics of projectile motion? Find out the total time of flight and maximum hight of projectile motion. Describe 3rd kind lever with the example body lever. 6+2+2+5=15

5. What is biomechanical analysis? What are the various techniques and procedure of biomechanical analysis? Biomechanically analyse the running with the biomechanical factors. 2+5+8=15

Group - B

Write notes on ***any two*** of the following : 7.5×2=15

6. Steps in qualitative biomechanical analysis.
7. Significance of kinesiology in physical education and sport
8. Biomechanical factors of running board jump
9. Central of gravity and sports performance

Group-C

10. Answer any ten Questions (put a tick against your answer): **1 X 10 =10**

1. Biomechanics refers to the study of human movements including
   (A) Interaction between athletes
   (B) Exercise environment
   (C) Sports equipment
   (D) All the above

2. The tern indicates "further away from head"
   (A) Proximal
   (B) Distal
   (C) Cardinal
   (D) Caudal

3. What is the mechanical advantage of a simple lever that has an effort arm of 1 meter and a load arm of 20 cm?
   (A) 5
   (B) 0.2
   (C) 20
   (D) 0.5

4. Which of the following is/are true?
   (A) Radian is unit of angle
   (B) 1 Radian = 57.296degree
   (C) 2π Radians = 360°
   (D) All the above

5. Inertia and torque are

(A) Both scalar quantity

(B) Both vector quantity

(C) scalar and vector quantity

(D) vector and scalar quantity

6. Which axis of rotation is formed through the intersection of the frontal and sagittal planes?

(A) Frontal axis of rotation

(B) Sagittal axis of rotation

(C) Transverse axis of rotation

(D) None of the above

7. Which of the following pair are expressed in the same unit of measure?

(A) Weight and work

(B) Friction and torque

(C) Energy and friction

(D) Weight and work

8. _____muscle could serve as an antagonist of an abductor muscle.

(A) Adductor

(B) Rotator

(C) Flexor

(D) Extensor

9. The motion of a high jumper in downward direction after clearing the bar is an example of

(A) Regular motion

(B) Regularly accelerated motion

(C) Decelerated motion

(D) Irregularly decelerated motion

10. The knee is an example of

(A) Amphiarthroses

(B) Fibrous

(C) Synarthroses

(D) Synovial

11. Select the correct option Protraction and retraction take place in

(A) Hip Joint

(B) Shoulder joint

(C) Elbow joint

(D) Knee Joint

12. What will be the dropped height of a ball if the ball takes 10 seconds to reach the ground?

(Take g=10m/sec^2)

(A) 500m

(B) 1000m

(C) 10 m

(D) 100m