

Birla Institute of Technology & Science, Pilani
Introduction to Sports Engineering, ME F340
Mid-Semester test, Sem –II, 2022-23, March 2022

CLOSEDBOOK

Weightage: 30

Duration: 60 min.

Answer all parts of a question in continuous sequence

Q1)

- a) What are the elements that contribute stability and motion in a synovial joint?
- b) Consider the statement "For elbow joint, Normal and Functional ROM are defined as 80° & 50° respectively for Pronation and 85° and 50° for Supination" - explain the meaning of the same.
- c) What type of lever arrangement is there at the elbow joint for flexion? Identify the location of three parts of the lever at the elbow joint in a sketch.
- d) Explain with a rough sketch Normal cubitus valgus and varus variation in human arm.

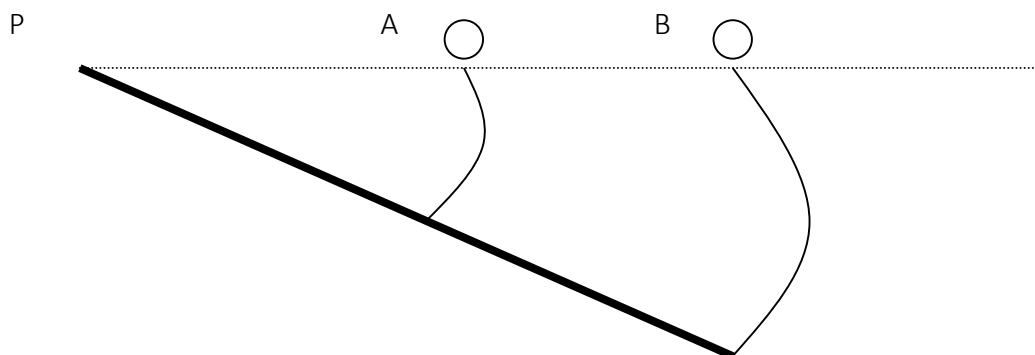
[4x3=12]

Q2)

- (a) What is the difference between point elastic and area elastic flooring system?
- (b) What is percentage force reduction with respect to surface test related to impact?
- (c) Explain the differences between grass, clay and asphalt court from structure and maintenance point of view.
- (d) Discuss a plan for a 8 court Multi – sports Hall and indicate the different games which can be organized.
- (e) State any three limitations of traditional performance analysis methods. List any four types of analysis used in today's sports field.

[5x3=15]

Q 3) Holding the ruler at the pivot point, P, swing it round so that it strikes the two balls at the same time.



- a) Which one goes the furthest? Ball A/B
- b) Which is fastest- / has the greatest velocity]? Ball A/B
- c) Where in sport/exercise can you apply this principle?

[3]