

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
Introduction to Sports Engineering, ME F340
Comprehensive Examination Sem -I 2023-24
CLOSEDBOOK.

Max marks: 80 (weightage 40)

Duration: 120 min.

Write to-the-point and short. Do all parts of a question in same continuous sequence

Q1) "It is strongly believed that sports performance is multidisciplinary in nature"- Justify the statement with an appropriate example from sports. And also describe how engineering and science can help in improvement of sports performance? [8+8= 16]

Q2) Answer the following in brief and if required accompany with sketch. [3x6=18]

- a) Discuss the shoe design parameters and their impact on running a race?
- b) "keeping weight closer to the body is more comfortable for work" justify the either case
- c) Take an example and prove that more short breaks increase the efficiency than one long break, applied to sports performance.

Q3) In the context of recently concluded 13th edition of the ICC Cricket World Cup in India, discuss the 4Ps of Marketing practiced (Product, Price, Promotion, Place). [6x2 = 12]

Q4) Explain **isometric**, **concentric** and **eccentric** action of muscle. What are the advantages and disadvantages of a qualitative biomechanical analysis? Answer in a tabulated form. [6 + 6=12]

Q5) What are advantages and disadvantages of a multi-sport facility? Prepare a layout for an 8 courts multi sports hall. Mention what salient points you have considered in decision making. Indicate the artificial lighting system for the 8 courts. Why outdoor play grounds mostly have a North-South orientation in India? [5+5+5+5+2=22]