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Question Paper Code: 56B03

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Sixth Semester

Biomedical Engineering

15UBM603- BIOMECHANICS

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The branch of mechanics that describes the cause of force is _____. CO1- R
(a) Kinetics (b) Kinematics (c) Biomechanics (d) Fluid mechanics
2. Which of the following defines center of gravity? CO1- R
(a) Intersection of the 3 cardinal planes
(b) The point around which a body's weight is equally balanced regardless of body position
(c) Both A & B
(d) Neither A nor B
3. Number of bones in the axial skeleton is _____. CO2- R
(a) 60 (b) 80 (c) 40 (d) 20
4. How many of the bones of the human skeleton engage in voluntary movement? CO2- R
(a) 206 (b) 200 (c) 177 (d) 150
5. Strongest ligament of the hip joint is _____. CO3- R
(a) pub femoral (b) Ileo femoral (c) Ischio femoral (d) femur fracture

6. Identify the major tissues in a synovial joint. CO3- R
- (a) Ligamentous joint capsule, hyaline cartilage, synovial membrane, synovial fluid
 (b) Ligamentous joint capsule, fibro cartilage, synovial membrane, synovial fluid
 (c) Cartilaginous joint capsule, hyaline cartilage, synovial membrane, synovial fluid
 (d) Cartilaginous joint capsule, fibro cartilage, synovial membrane, synovial fluid
7. Which of the following planes of the body divides it into upper and lower parts? CO4- R
- (a) Saginaw (b) Transverse (c) Frontal (d) Vertical
8. Find Partial Pressures (in mm Hg) of Oxygen and Carbon dioxide at Alveoli involved in Diffusion in Comparison to those in Atmosphere. CO4- R
- (a) 159&0.3 (b) 104&40 (c) 40&45 (d) 95&40
9. Blood vessels are known to retract both _____and _____after excision. CO5- R
- (a) Longitudinally and circumferentially (b) Horizontally and Vertically
 (c) Cylindrically and Circumferentially (d) Mechanically and Electrically
10. An athlete covering 100 m distance in 10 seconds, ran at a speed of ____ CO5- R
- (a) 10 m/s (b) 100 m/s (c) 20 m/s (d) 1000 m/s

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Outline the steps in analyzing a biomechanical problem CO1- U (8)
12. Illustrate the structure, composition and mechanical properties of bone CO2- U (8)
13. Outline the biomechanics of elbow, shoulder and spinal column with the help of a simple model. CO3- Ana (8)
14. Illustrate the Pressure-Volume curve of the respiratory system. CO4- U (8)
15. Compare the mechanical properties of arteries, arterioles, capillaries and veins. CO5- U (8)