

Total number of printed pages-11

34 (1) BIOM 1-4

2016

BIOMECHANICS

Full Marks : 100

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

I. Essay Type (Answer **any two**) :

2×10=20

1. Explain the composition of muscle fibre with diagrams. Describe the various types of muscular contraction with examples.
2. Detail out hand function along with the mechanism of finger flexion.
3. Explain tibio-femoral joint. Mention the screw-home mechanism of knee joint.

Contd.

(e)

II. Short Essay Type (Answer **any ten**)

10×5=50

1. Explain 'flexion-relaxation phenomenon' in Lower Thoracic Region.
2. Classify joints with examples.
3. Primary and accessory muscles of ventilation.
4. Movements of Temporomandibular joints.
5. Pathological gaits.
6. Static and Dynamic stabilisation of Gleno-Humeral joint,
7. Articulations and movements in the Ankle joint.
8. Explain postural synergies.
9. Muscles around the elbow joint.
10. Classes of lever with examples.
11. Types of joint lubrications.

6. Palmar Arches

7. Pulleys.

IV. Multiple choice questions : 20×1=20

1. Which is not a saddle joint ?
 - (a) Carpometacarpal of thumb
 - (b) Ankle
 - (c) Sternoclavicular
 - (d) Acromioclavicular
2. Normal carrying angle —
 - (a) 0–20°
 - (b) 0–30°
 - (c) 0–10°
 - (d) 0–40°
3. Which class of lever is of power ?
 - (a) 1st
 - (b) 2nd
 - (c) 3rd
 - (d) 2nd and 3rd

4. A pathological increase of neck shaft angle is known as —

- (a) Coxa Vara
- (b) Coxa Valga
- (c) Femoral Anteversion
- (d) Femoral Retroversion.

5. Inversion Eversion component is more in

- (a) Ankle Joint
- (b) Mid Tarsal Joint
- (c) Sub Talar Joint
- (d) None.

6. Stance phase is _____ of gait cycle.

- (a) 40%
- (b) 50%
- (c) 60%
- (d) 70%

7. Which knee joint ligament helps in locking?

- (a) ACL
- (b) PCL
- (c) LCL
- (d) Posterior Capsule

8. Which is not included in Pes analysis?

- (a) Gracilis
- (b) Semi Membranosus
- (c) Semi Tendinosus
- (d) Sartorius.

9. Which is the most important muscle to produce upward rotation of scapula?

- (a) Serratus Anterior
- (b) Trapezius
- (c) Lovator scapulac
- (d) Deltoid.

10. Weight of HAT is about _____ of body weight.

- (a) 40%
- (b) 50%
- (c) 60%
- (d) 70%

11. COG of adult human in anatomical position is slightly

- (a) Anterior to S₁ vertebra
- (b) Posterior to S₁ vertebra
- (c) Anterior to S₂ vertebra
- (d) Posterior to S₂ vertebra.

12. Minimum muscle force is required when the joint is on

- (a) Closed Pack Position
- (b) Loose Pack Position
- (c) In between close and loose pack position
- (d) In Extension.

13. Biceps Brachii muscle as an elbow flexor is most effective at _____ elbow flexion range.

- (a) 45°
- (b) 60°
- (c) 90°
- (d) 120°

(c) Weakness of knee flexors.

(d) Weakness of knee extensors.
