

BACHELOR OF PHYSIOTHERAPY
THIRD SEMESTER
BIOMECHANICS
BPT – 306 [REPEAT]
[USE OMR SHEET FOR OBJECTIVE PART]

**SET
A**

Duration: 3 hrs.

Full Marks: 70

Time: 30 min.

Marks: 20

$$1 \times 20 = 20$$

Objective

Choose the correct answer from the following:

1. What is the typical range of motion for hip abduction?
 - a. 15-30 degrees
 - b. 30-45 degrees
 - c. 45-60 degrees
 - d. 60-90 degrees
2. What is the carrying angle of the elbow, typically observed in the anatomical position?
 - a. 0 degree
 - b. 5- 15 degree
 - c. 45 degree
 - d. 20- 30 degree
3. What phase of gait involves the time when the foot is in contact with the ground?
 - a. Swing phase
 - b. Stance phase
 - c. Double support phase
 - d. Terminal swing phase
4. In a normal walking cycle, pronation occurs primarily during which phase?
 - a. Initial contact
 - b. Midstance
 - c. Push-off
 - d. Swing
5. Which structure serves as a roof for the carpal tunnel?
 - a. Flexor retinaculum
 - b. Palmaris longus tendon
 - c. Extensor retinaculum
 - d. Ulnar nerve
6. What is the primary purpose of the locking mechanism of the knee?
 - a. To facilitate rapid extension
 - b. To stabilize the knee joint during standing
 - c. To allow for flexion and extension
 - d. To prevent hyperextension
7. During nutation, which of the following movements occurs at the sacroiliac joint?
 - a. Sacral extension
 - b. Sacral flexion
 - c. Anterior rotation of the ilium
 - d. Posterior rotation of the ilium
8. Which ligament is primarily responsible for preventing excessive extension of the cervical spine?
 - a. Anterior longitudinal ligament
 - b. Posterior longitudinal ligament
 - c. Ligamentum flavum
 - d. Nuchal ligament

9. Which of the following joints allows for pronation and supination of the forearm, affecting wrist movement?
 - a. Distal radioulnar joint
 - b. Radiocarpal joint
 - c. Intercarpal joint
 - d. Midcarpal joint
10. During cervical rotation to the right, which vertebra is primarily responsible for the motion?
 - a. C1 (Atlas)
 - b. C2 (Axis)
 - c. C3
 - d. C7
11. Which type of grip is characterized by the use of the thumb and fingertips to hold small objects?
 - a. Power grip
 - b. Hook grip
 - c. Pinch grip
 - d. Cylindrical grip
12. Which of the following is not a vector quantity?
 - a. Speed
 - b. Magnitude
 - c. Velocity
 - d. Torque
13. The normal angle of torsion for shoulder joint is
 - a. 30-degree posterior
 - b. 30- degree anterior
 - c. 30- degree lateral
 - d. None of the above
14. Muscle involved in flexor mechanism of hand
 - a. Palmar interossei
 - b. Dorsal interossei
 - c. Flexor digitorum superficialis
 - d. Lumbricals
15. Stability in the GH joint is derived primarily from
 - a. Ligaments and muscles
 - b. Only muscles
 - c. Joint contact area
 - d. None of the above
16. Joule is the SI unit of
 - a. Mass
 - b. Time
 - c. Force
 - d. Work
17. Temporomandibular joint is classified as which type of joint?
 - a. Hinge joint
 - b. Ball & socket joint
 - c. Condylar joint
 - d. Ellipsoid joint
18. The rotation of GH movement to scapular movement through 180 degrees of abduction and flexion is
 - a. 1:2
 - b. 2:1
 - c. 2:3
 - d. 3:2
19. The normal angle of inclination of shoulder joint is
 - a. 100-120 degree
 - b. 130 -150 degree
 - c. 150-170 degree
 - d. 0- 180 degree

20. Rotator cuff tears and impingement happen with which muscle
- a. Supraspinatus
 - b. Tres major
 - c. Infraspinatus
 - d. Subscapularis

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(Descriptive)

Time: 2 hrs 30 min

Marks: 50

[Answer question no.1 & any four (4) from the rest]

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| 1. What are the contractile and noncontractile elements of muscle? | 10 |
| 2. Discuss structure and function of Cervicle vertebra? | 10 |
| 3. Write in detail about kinetic and kinematics of elbow joint. | 10 |
| 4. Define Gait cycle and the 6determinants of Gait. Also explain any 3 abnormal gaits? | 10 |
| 5. Write in detail about kinetic and kinematics of wrist joint. | 10 |
| 6. What is Windlass mechanism and also explain supination twist and pronation twist? | 10 |
| 7. Write in detail about flexor and extensor mechanism of hand. | 10 |
| 8. What are the roles of the costoclavicular and interclavicular ligaments at the sternoclavicular joint? | 10 |

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