DPT 2nd Semester (section A)

Course Title: Biomechanics-I **Instructor: Dr. Ahmed Hayat**

MID Term Assignment Marks: 30

Draw a table including all the muscles and their actions of the following joints.

Q1: Shoulder joint.

Ans : **SHOULDER JOINT MUSCLES**

- **EXTRINSIC MUSCLES:**

1. SUPERFICIAL EXTRINSIC MUSCLES

MUSCLES	ACTIONS
Trapezius	Rotation, retraction, elevation and depression of shoulder blades
Latissmus dorsi	Adducts arm, assists in medial rotation of the arm, horizontal abduction, flexion from an extended position and extension

2. DEEP EXTRINSIC MUSCLES

MUSCLES	ACTIONS
Levator scapulae	Elevates the scapula
Rhomboid major	Retraction and elevation of the inner border of scapula
Rhomboid minor	Rotates scapula, pulls it medially holds scapulae into thorax wall

- **INTRINSIC MUSCLES**

MUSCLES	ACTIONS
Deltoid	1. **Anterior fibres:** flexion and medial rotation of arm 2. **Middle fibres:** abduction of arm from 15 to 90 3. **Posterior fibres:e**xtension and lateral rotation of the arm

Teres major	Medial rotation, extension and adduction of shoulder

1. ROTATOR CUFF MUSCLES:

MUSCLES	ACTIONS
Supra spinatus	Abduction of the humerus and stabalizes the shoulder joint
Infraspinatus	External rotation of the arm and stabalization of shoulder joint
Subscapularis	Internal rotation and adduction of humerus
Teres minor	Lateral rotation of the arm and humerus stability

Q2: Elbow joint.

Ans: ## ELBOW JOINT MUSCLES:

MUSCLES NAMES	ACTIONS
1. BICEPS BRACHII	Supination and flexion of elbow and abduction.
2. TRICEPS BRACHII	Adduction, extention of forearm.
3. ANCONEUS	Extention of forearm/ makes the elbow stable during pronation and supination.
4. BRACHIALIS	Strong flexion of forearm.
5. BRACHIORADIALIS	Flexes the forearm, pronation and supination.
6. PRONATOR TERES	Pronation of the forearm.
7. PRONATOR QUADRATUS	Pronates the forearm and maintains radius and ulna opposition.
8. SUPINATOR	Supination of the forearm.

Q3: Wrist joint.

Ans: ## WRIST JOINT MUSCLES

MUSCLE NAMES	ACTIONS
FLEXOR CARPI RADIALIS	Flexion and radial deviation of the hand at wrist

FLEXOR CARPI ULNARIS	Flexion and ulnar deviation of the hand at wrist
EXTENSOR CARPI RADIALIS BREVIS	Extends and radially deviates the hand at wrist
EXTENSOR CARPI ULNARIS	Extention and ulnar deviation of hand
EXTENSOR CARPI RADIALIS LONGUS	Extends and radially deviates at wrist
PALMARIS LONGUS	Flexion of wrist
FLEXOR DIGITORUM PROFUNDUS	Flexion of distal phalanges and hand both
FLEXOR DIGITORUM SUPERFICIALS	Flexion of middle and proximal phalanges
FLEXOR DIGI MINIMI BREVIS	Flexion of little finger.
FLEXOR POLLICIS LONGUS	Flexion of phalanges of thumb
FLEXOR POLICIS BREVIS	Flexion of thumb
EXTENSOR DIGITI MINIMI	Extends the wrist and 5^{th} digit
EXTENSOR DIGITORUM	Extends four digit
EXTENSOR POLLICIS LONGUS	Extends the thumb
EXTENSOR INDICIS	Extension of the index finger and assists in extending the hand.
ABDUCTOR POLICIS BREVIS	Abducts thumb
ADDUCTOR POLICIS	Adducts thumb
ABDUCTOR DIGITI MINIMI	Abducts 5^{th} finger
ABDUCTOR POLICIS LONGUS	Abducts thumb
OPPONENS POLLICIS	Brings 1^{st} metacarpal laterally to oppose thumb towards the palm's center
OPPONENS DIGITI MINIMI	Brings little finger into opposition whith thumb