**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.

Q2: Elbow joint.

Q3: Wrist joint.

**Q1: Shoulder Joint**

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| INTRINSIC MUSCLES | EXTRINSIC MUSCLES |
| ROTATOR CUFF MUSCLES | SUPERFICIAL | DEEP |
| Supraspinatus | Abduction | TrapeziusUpper FibersMiddle FibersLower Fibers | Action1.Elevation of Scapula,2.Upward Rotation1.Retraction of Scapula1.Depression of Scapula2.Upward Rotation | Levator Scapulae | Elevation of Scapula |
| Infraspinatus | External Rotation | Rhomboid Major | Retraction of Scapula |
| Subscapularis | Internal Rotation | Rhomboid Minor | Retraction of Scapula |
| Teres Minor | Internal Rotation |  |  |
| OTHER INRINSIC MUSCLES | Latissimus Dorsi | 1.Adduction2.Extension3.Internal Rotation4.Depression of Scapula |  |  |
| Teres Major  | Medial rotation |
| Deltoid1.Anterior2.Middle3.Posterior | FlexionInternal rotation,AbductionExternal Rotation,Extension |

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| OTHER MUSCLES OF THE SHOULDER |
| Serratus Anterior | Protraction |
| Pectoralis Major | Horizontal AdductionHorizontal FlexionMedial Rotation |
| Pectoralis Minor | Protraction of ScapulaDownward rotation of scapula |

**Q2: Elbow joint**

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| MUSCLES | ACTION |
| Bicep BrachiiBrachialiasBrachoradialis | Flexion |
| Tricep BrachiiAnconeus | Extension |
| Pronator TeresPronator Quadratis | Pronation |
| Bicep BrachiiSupinator | Supination |

**Q3: Wrist Joint**

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| FLEXOR MUSCLES |
| Flexor Carpi Ulnaris | FlexionUlnar deviation of the hand |
| Flexor Carpi Radialis | FlexionRadial deviation of the hand |
| Flexor Digitorum Superficialis | Flexion of the middle phalanges at the interphalangeal jointsFlexion of proximal phalanges at the metacarpophalangeal joint and hand |
| Flexor Digitorum Profundus | Flexion of distal phalanges at the distal interphanlageal joint |
|  Flexor Digiti Minimi Brevis | Flexion of the proximal phalanx of the 5th (little)finger |
| Flexor Pollicis Brevis | Flexion of the thumb |
| Palmaris Longus | Flexes hand at the wrist |
| Flexor Pollicis Longus | Flexes the Thumb |

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| EXTENSOR MUSCLES |
| Extensor Carpi Radialis Brevis | Extension andRadial deviation of the wrist |
| Extensor Carpi Radilais Longus | Extension andRadial deviation of the wrist |
| Extensor Carpi Ulnaris | Extension andUlnar deviation of the wrist |
| Extensor Digiti Minimi | Extends 5th digit at metacarpophalangeal and interphalangeal joint |
| Extensor digitorum | Extends the 4th digit and the wrist |
| Extensor Indicis | Extends the 2nd digits and helps in the extension of hand |
| Extensor pollicis Brevis | Extends proximal phlanx of the thumb at carpometacarpal joint |
| Extensor Pollics Longus | Extends distal phalanx of the thumb at carpometacarpal and interphalangeal joint |

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| ABDUCTOR MUSCLES |
| Abductor Digiti Minimi | Abducts 5th (little)finger |
| Abductor Pollicis Brevis | Abducts Thumb |
| Abductor Pollicis Longus | Abducts Thumb |

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| ADDUCTOR MUSCLES |
| Adductor Pollicis | Adducts Thumb |

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| OPPOSITION |
| Opponens digiti minimi | Brings little finger in position to the thumb |
| Opponence policis | Draws 1st metacarpal laterally to oppose thumb toward center of palm |