**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.

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| ***EXTRINSIC MUSCLES*** | | | |
| SUPERFICIAL EXTRINSIC MUSCLES | | DEEP EXTRINSIC MUSCLES | |
| MUSCLE NAME | MOVEMENT | MUSCLE NAME | MOVEMENT |
| TRAPEZIUS | UPPER:SCAPULAR ELEVATION AND UPWARD ROTATION.  MIDDLE: SCAPULAR DEPRESSION.  LOWER: SCAPULAR DEPRESSION AND UPWARD ROTATION. | LEVATOR SCAPULAE | ELEVATES THE SCAPULA AND TILTS ITS GLENOID CAVITY INFERIORLY BY ROTATING SCAPULA |
| LATISSMUS DORSI | IT ADDUCTS AND EXTENDS THE ARM. IT HELP IN MEDIL ROTATION OF THE ARM.IT DEPRESSES THE SHOULDER GIRDLE THROUGH INSERTION ON THE HUMERUS. | RHOMBOID MAJOR | RETRACTS THE SCAPULA AND ROTATES IT TO DEPRESS THE GLENOID CAVITY.IT ALSO FIXES THE SCAPULA YO THE THORACIC WALL. |
|  |  | RHOMBOID MINOR | RETRACTS AND ROTATES THE SCAPULA AND FIXES IT TO THORACIC WALL |

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| MUSCLE NAME | ACTION OF MUSCLES |
| SERRATUS ANTERIOR | IT HELP TRAPEZIUS.IT PROTRACTS THE SCAPULA AND UPWARDLY ROTATES THE SCAPULA. |
| PECTORALIS MAJOR | HORIZANTAL FLEXION OF SHOULDER.ADDUCTION OF SHOULDER AND MEDIAL ROTATION OF SHOULDER. |
| PECTORALIS MINOR | IT PROTRACTS THE SCPULA AND DOWNWARDLY ROTATES THE SCAPULA. |
| |  |  | | --- | --- | | ***INTRINSIC MUSCLES*** | | | MUSCLE NAME | MOVEMENT | | DELTOID | ANTERIOR FIBER: FLEXION AND MEDIAL ROTATION OF ARM.  MIDDLE FIBER: ABDUCTION OF ARM FROM 15 TO 90.  POSTERIOR FIBERS: EXTENSION AND LATERAL ROTATION OF THE ARM. | | `TERES MAJOR | MEDIAL ROTATION ,ADDUCTION AND EXTENSION OF THE SHOULDER JOINT. | | ROTATOR CUFF MUSCLES | | | SUPRASPINATUS | ABDUCTION OF THE ARM AND HELP IN STABILIZATION OF SHOULDER JOINT. | | INFRASPINATUS | IT ROTATES THE ARM LATERALLY | | SUBSCAPULARIS | IT MEDIALLY ROTATES THE ARM | | TERES MINOR | IT LATERALLY ROTATES THE ARM | | |

Q2: Elbow joint.

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| MUSCLES NAMES | MOVEMENT |
| .BICEP BRACHII  .BRACHIALIS  .BRACHIORADIALIS | FLEXION |
| .TRICEP BRACHII  .ANCONEUS | EXTENSION |
| .PRONATOR TERES  .PRONATOR QUADRATUS | PRONATION |
| .SUPINATOR  .BICEP BRACHII | SUPINATIO |

Q3: Wrist joint.

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| ***FLEXOR GROUP OF THE WRIST*** | |
| MUSCLES | MOVEMENTS |
| FLEXOR CARPI RADIALUS | FLEXES AND RADIAL DEVIATES THE HAND AT WRIST |
| FLEXOR CARPI ULNARIS | FLEXES AND ULNAR DEVIATES THE HAND AT WRIST |
| FLEXOR DIGITORIUM SUPERFICIALIS | IT FLEXES MIDDLE PHALANGES AT PROXIMAL INTERPHALANGEAL JOINTS, IT ALSO FLEXES PROXIMAL PHALANGES AT METACARPOPHALANGEAL JOINTS AND HAND |
| PALMARIS LONGUS | FLEXES HAND AT THE WRIST |
| FLEXOR DIGITORIUM PROFUNDUS | FLEXES DISTAL PHALANGES AT DISTAL INTERPHALANGEAL JOINTS |
| FLEXOR DIGITI MINIMI BREVIS | FLEXES PROXIMAL PHALANX OF LITTLE FINGER |
| FLEXOR POLLICIS BREVIS | IT FLEXES THUMB |
| FLEXOR POLICIS LONGUS | FLEXES PHALANGES OF THUMB |

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| ***EXTENSORS OF THE WRIST*** | |
| EXTENSOR CARPI RADIALIS BREVIS | EXTENDS AND RADIALLY DEVIATES THE WRIST |
| EXTENSOR CARPI RADIALIS LONGUS | EXTENDS AND RADIALLY DEVIATES AT THE WRIST |
| EXTENSOR CARPI ULNARIS | EXTENDS AND ULNAR DEVIATES HAND AT WRIST |
| EXTENSOR DIGITI MINIMI | EXTENDS 5TH DIGIT AT METACARPOPHALANGEAL AND INTERPHALANGEAL JOINTS |
| EXTENSOR DIGITORIUM | EXTENDS THE FOUR DIGITS AND THE WRIST |
| EXTENSOR INDICIS | EXTENDS 2ND DIGIT AND HELPS TO EXTEND HAND |

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| EXTENSOR POLICIS BREVIS | EXTENDS PROXIMAL PHALANX OF THUMB AT CARPOMETACARPAL JOINT |
| EXTENSOR POLICIS LONGUS | EXTENDS DISTAL PHALANX OF THUMB AT CARPOMETACARPAL AND INTERPHALANGEAL JOINTS |

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| ***ABDUCTION AT HAND*** | |
| ABDUCTOR DIGITI MINIMI | ABDUCTS LITTLE FINGER |
| ABDUCTOR POLICIS BREVIS | ABDUCTS THUMB |
| ABDUCTOR POLICIS LONGUS | ABDUCTS THUMB |

***ADDUCTION***

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| ADDUCTOR POLICIS | ADDUCTS THUMB |
| ***OPPOSITION***   |  |  | | --- | --- | | OPPONENS DIGITI MINIMI | BRINGS LITTLE FINGER INTO OPPOSITION WITH THUMB | | OPPONENCE POLICIS | DRAW 1ST METACARPAL LATERALLY TO OPPOSE THUMB TOWARDS CENTER OF PALM. | | |