UNIVERSITI KUALA LUMPUR
ROYAL COLLEGE OF MEDICINE PERAK

FINAL EXAMINATION
JULY 2025 SEMESTER

COURSE CODE	: RFD13803
COURSE NAME	: BASIC KINESIOLOGY AND BIOMECHANICS
PROGRAMME NAME	: DIPLOMA IN PHYSIOTHERAPY
DATE	: 18 SEPTEMBER 2025
TIME	: 2.00 PM – 4.00 PM
DURATION	: 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read CAREFULLY the instructions given in the question paper.
2. This question paper has information printed on both sides of the paper.
3. This question paper consists of TWO (2) sections; Section A and Section B.
4. Answer ALL questions in Section A and THREE (3) questions in Section B.
5. Please mark/write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English language ONLY.

THERE ARE 8 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

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SECTION A: MULTIPLE CHOICE QUESTIONS (Total: 20 marks)

INSTRUCTION: Answer ALL questions.
Please use the OMR sheet provided.

1. Select the movement that occurs in coronal plane.
   A. Elbow flexion.
   B. Wrist extension.
   C. Forearm pronation.
   D. Shoulder abduction.

2. Find the term that refers to Newton's 3rd law.
   A. Inertia.
   B. Gravity.
   C. Reaction.
   D. Acceleration.

3. **"The action line of X force system will not overlap if extended."**
   Identify **X**.
   A. linear
   B. parallel
   C. bending
   D. torsional

4. Select the joint shape that allows monoaxial plane motion.
   A. Hinge.
   B. Planar.
   C. Saddle.
   D. Condyloid.

5. Identify the rotator cuff muscle.
   A. Deltoid.
   B. Teres major.
   C. Infraspinatus.
   D. Pectoralis minor.

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6.

- **Recruited for power lifting.**
- **Have the fastest contraction speed.**
- **Rate of fatigue is the fastest.**

Select the type of muscle fibers according to the above characteristics.

A. Type I.

B. Type III.

C. Type IIA.

D. Type IIB.

7. Find the term that refers to coordinated movement of the humerus and scapula during arm elevation.

A. Scapulothoracic rhythm.

B. Scapulohumeral rhythm.

C. Coracoclavicular rhythm.

D. Acromioclavicular rhythm.

8. Which muscle is primarily responsible for wrist extension?

A. Palmaris longus.

B. Flexor carpi ulnaris.

C. Flexor carpi radialis.

D. Extensor carpi ulnaris.

9. Which of the following moves during forearm supination and pronation?

A. Contraction of wrist muscles.

B. Movement of the shoulder girdle.

C. Flexion and extension of forearm.

D. Rotation of radius around the ulna.

10. Identify the curvature of the spine for scoliosis.

A. Lordosis.

B. Kyphosis.

C. Lateral curvature.

D. Anterior curvature.

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11. Find the extra articular ligament of hip joint.

A. Ligamentum teres.
B. Iliofemoral ligament.
C. Anterior cruciate ligament.
D. Posterior longitudinal ligament.

12.

- **Reduced femoral angle of inclination more than 105 degrees.**
- **Present with genu valgum presentation of knee.**

Select the term that refers to the above statement.

A. Coxa vara.
B. Coxa valga.
C. Anteversion.
D. Retroversion.

13. Find the prime mover for knee extension.

A. Gracilis.
B. Popliteus.
C. Hamstring.
D. Quadriceps.

14. **"X muscle works synergistically with iliopsoas to performs hip flexion and is the agonist for knee extension."**

Identify **X**.

A. Hamstring
B. Quadriceps
C. Biceps femoris
D. Quadratus lumborum

15. Select the ankle articulation that resembles mortise and tenon.

A. Talotibial.
B. Talofibular.
C. Talonavicular.
D. Talocalcaneal.

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16. Find the bones that form the mid foot structure.

I. Talus.
II. Cuboid.
III. Cuneiform.
IV. Calcaneus.

A. I and II.
B. I and III.
C. II and III.
D. III and IV.

17. Which of the following factor leads to poor posture?

A. Proper alignment.
B. Active movement.
C. Vigorous exercise.
D. Prolonged static position.

18. Select the action that improves posture during working at a desk.

A. Crossing feet while sitting to improve comfort.
B. Avoiding breaks and remain seated for long durations.
C. Using ergonomic chair and adjusting monitor height appropriately.
D. Using chair without arm rest to promote good posture during working.

19. Identify the phase that requires weight transferring prior to single limb support.

A. Heel off.
B. Foot flat.
C. Midstance.
D. Heel strike.

20. Find the term that refers to time that elapses during the period when only one extremity is on the supporting surface.

A. Step time.
B. Stance time.
C. Single limb support time.
D. Double limb support time.

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SECTION B: MODIFIED ESSAY QUESTIONS (Total: 60 marks)

INSTRUCTION: This section consists of FOUR (4) questions.
Answer THREE (3) questions in the answer booklet provided.

Question 1

(a) Describe **TWO (2)** movements that occur in sagittal plane.

(4 marks)

(b) Define the following.

i. Static friction.

(2 marks)

ii. Dynamic friction.

(2 marks)

(c) Describe the parallel force system.

(4 marks)

(d) Following questions are related to hip joint complex.

i. Name **FOUR (4)** hip ligaments.

(4 marks)

ii. Explain the hip angle of inclination.

(4 marks)

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Question 2

(a) Describe open and close kinetic chain of joint.

(5 marks)

(b) State **FOUR (4)** effects of aging to muscles.

(4 marks)

(c) Describe about knee meniscus.

(5 marks)

(d) Following questions are related to shoulder joint complex.

i. List **THREE (3)** articulations of shoulder joint.

(3 marks)

ii. Describe the arthrokinematic of sternoclavicular joint.

(3 marks)

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Question 3

(a) Following questions are related to elbow, wrist and hand complex.

i. Name **THREE (3)** power grips.

(3 marks)

ii. Explain the stability of wrist complex.

(3 marks)

(b) Following questions are related to spine complex.

i. Name **TWO (2)** spinal column.

(2 marks)

ii. Describe **TWO (2)** curvatures of vertebral column.

(4 marks)

(c) Following questions are related to posture.

i. List **FOUR (4)** components that affecting posture.

(4 marks)

ii. Describe the inertial force in posture.

(4 marks)

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Question 4

(a) Explain about collateral ligament of knee joint.

(4 marks)

(b) Describe longitudinal foot arch.

(8 marks)

(c) Explain **FOUR (4)** time variables in gait.

(8 marks)

END OF EXAMINATION PAPER

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