



UNIVERSITI KUALA LUMPUR
ROYAL COLLEGE OF MEDICINE PERAK

FINAL EXAMINATION
MARCH 2026 SEMESTER

COURSE CODE : RFB20203
COURSE NAME : KINESIOLOGY 2
PROGRAMME NAME : BACHELOR OF PHYSIOTHERAPY (HONOURS)
DATE : 22 JUNE 2026
TIME : 9.00 AM – 11.00 AM
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; Question 1 and Question 2 are **COMPULSORY**.
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 9 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

I) MULTIPLE CHOICE QUESTIONS (20 marks)

INSTRUCTION: Answer ALL questions.

Please use the OMR sheet provided.

1. Find the **CORRECT** statement related to posture.
 - A. Strength of postural muscles.
 - B. Ability to walk in a straight line.
 - C. Ability to maintain balance on one leg.
 - D. Relationship of muscles during exercise.
 - E. Positional relationship of body regions to each other.
2. Which of the following is an example of dynamic posture?
 - A. Lying.
 - B. Sitting.
 - C. Walking.
 - D. Kneeling.
 - E. Standing.
3. Find the term that refers to the activation of muscle from distal to proximal to maintain the body in equilibrium during perturbation.
 - A. Hip synergy.
 - B. Postural fault.
 - C. Ankle synergy.
 - D. Postural control.
 - E. Posture corrector.
4. Which body system learns to maintain standing stability?
 - A. Digestive system.
 - B. Endocrine system.
 - C. Respiratory system.
 - D. Cardiovascular system.
 - E. Central nervous system.

5. Identify the phase that occupies the largest percentage of the gait cycle.
- A. Pre-swing.
 - B. Midstance.
 - C. Swing phase.
 - D. Stance phase.
 - E. Terminal swing.
6. Find the **CORRECT** muscle mainly responsible for push-off during terminal stance.
- A. Hamstring.
 - B. Quadriceps.
 - C. Tibialis anterior.
 - D. Gastrocnemius.
 - E. Gluteus medius.
7. Identify the muscle weakness involved in high stepping gait.
- A. Hamstrings.
 - B. Quadriceps.
 - C. Hip abductors.
 - D. Gluteus maximus.
 - E. Ankle dorsiflexors.
8. Select the function of quadriceps muscle during descending stairs.
- A. Produce hip flexion.
 - B. Control knee flexion.
 - C. Increase ankle plantarflexion.
 - D. Stabilize upper limb movement.
 - E. Accelerate forward trunk movement.
9. Select the appropriate gait pattern that shows pelvic drop on the unsupported side during walking.
- A. Antalgic gait.
 - B. Steppage gait.
 - C. Hemiplegic gait.
 - D. Parkinsonian gait.
 - E. Trendelenburg gait.

10. Identify the degree of excessive toe out for an adult.
- A. 6
 - B. 7
 - C. 9
 - D. 13
 - E. 20
11. Select the type of muscle contraction that produces positive work during gait.
- A. Passive contraction.
 - B. Eccentric contraction.
 - C. Isokinetic contraction.
 - D. Isometric contraction.
 - E. Concentric contraction.
12. Identify the force that pushes upward from the surface during walking.
- A. Friction force.
 - B. Buoyancy force.
 - C. Centrifugal force.
 - D. Hydrostatic pressure.
 - E. Ground reaction force.
13. Why does walking on uneven surface require greater balance control?
- A. Joint motion is reduced.
 - B. Increased stability occurs.
 - C. Muscle activity decreases.
 - D. Greater adaptability is needed.
 - E. Proprioception becomes less active.
14. Select the muscle is primarily responsible for the lateral flexion of the trunk to shift body weight during the initiation of sit-to-stand movement.
- A. Psoas major.
 - B. Tibialis anterior.
 - C. Gluteus maximus.
 - D. Rectus abdominis.
 - E. Quadratus lumborum.

15. Which muscle is primarily responsible for performing trunk lateral flexion during the lateral weight shifting phase of the sit-to-stand movement?
- A. Iliacus.
 - B. Psoas major.
 - C. Gluteus medius.
 - D. Rectus abdominis.
 - E. Quadratus lumborum.
16. Identify muscle that contracts concentrically to produce trunk flexion during the flexion momentum phase of a sit-to-stand movement.
- A. Multifidus.
 - B. Erector spinae.
 - C. Splenius cervicis.
 - D. Gluteus maximus.
 - E. Rectus abdominis.
17. Identify the phase of cycling that mainly produces propulsion.
- A. Float phase.
 - B. Swing phase.
 - C. Power phase.
 - D. Support phase.
 - E. Recovery phase.
18. Select the reason trunk muscles are important during cycling.
- A. Increase ankle flexibility.
 - B. Produce knee extension force.
 - C. Increase pedal rotation speed.
 - D. Reduce hip flexion movement.
 - E. Stabilize posture during pedaling.

19. Identify the muscle primarily responsible for propulsion during freestyle pull-through phase.
- A. Rectus femoris.
 - B. Gastrocnemius.
 - C. Tibialis anterior.
 - D. Latissimus dorsi.
 - E. Quadriceps femoris.
20. Which statement describes drag force in swimming?
- A. It assists upward floating.
 - B. It stabilizes trunk posture.
 - C. It increases body buoyancy.
 - D. It opposes swimmer movement.
 - E. It reduces propulsion force completely.

II) SHORT ANSWER QUESTIONS (20 marks)

INSTRUCTION: Answer ALL questions in the answer booklet provided.

Each question carries FOUR (4) marks.

1. List **FOUR (4)** physiological functions affected by posture.
2. Identify the functions of the stance phase during gait.
3. State **FOUR (4)** characteristics of walking on uneven surface.
4. Identify phases in sit to stand movement.
5. Explain characteristics of chest pass technique in netball.

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 and Question 2 are COMPULSORY.

Question 1

- (a) Describe the biomechanics of the ankle joint during optimal standing posture.
(8 marks)
- (b) Explain the procedure of beam walk balance test.
(8 marks)
- (c) Discuss the effects of flexed-knee posture on standing posture and balance.
(4 marks)

Question 2

A 67-year-old man with right knee osteoarthritis complains of pain and difficulty walking for the past 6 months. During gait observation, he demonstrates reduced step length on the right side and spends less time weight bearing on the affected limb. He also walks slowly and uses a wider base of support.

- (a) Identify the gait pattern demonstrated by him.
(1 mark)
- (b) Analyze **FOUR (4)** factors affecting the reducing patient's step length during walking.
(4 marks)
- (c) Explain the procedure of observational gait analysis from the lateral view for this patient.
(8 marks)
- (d) Analyse the abnormalities that may occur during the stance phase in this patient.
(7 marks)

Question 3

- (a) Determine **FOUR (4)** biomechanical principles involved in swinging movement using pendulum mechanics. (4 marks)
- (b) Explain **THREE (3)** differences between movement on land and movement in water. (6 marks)
- (c) Discuss the differences between the stance phase and swing phase in gait analysis. (10 marks)

Question 4

- (a) Describe components that need to be emphasized in flexion momentum during sit to stand for the people that has difficulty to lift up buttock. (8 marks)
- (b) Describe joint motion during turning from supine. (12 marks)

END OF EXAMINATION PAPER