JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester IV) Examination May 2025

Programme:BPT
Course: Biomechanics II **Full Marks: 70**
Course Code: 23A402 **Time: 3 Hrs.**
Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	Explain how the angle of inclination and torsion influence shoulder biomechanics and joint stability.	CO1	Understand	
	or			
	Explain how ulnar variance affects wrist biomechanics and stability.	CO1	Understand	
b	Why medial meniscus gets more injury than lateral meniscus?	CO1	Analyze	
	or			
	Explain what is Q angle and how it is measured.	CO1	Remember	
c	Name the important ligaments of vertebral spine.	CO2	Remember	
	or			
	Describe primary and secondary curvature of spine.	CO2	Remember	
d	Enumerate the phases of stair gait cycle.	CO4	Remember	
	or			
	Explain how each determinant of gait contributes to gait efficiency and stability.	CO4	Understand	
	Section II			
Long Answer type questions.				**3 x 10 = 30**
2	Describe kinetics and kinematics of vertebral column?	CO2	Analyze	
	or			
	Demonstrate the clinical relevance of sacral nutation and counter-nutation in physiotherapy.	CO2	Apply	
3	What are the different temporal and distance variables of gait cycle? Explain each type in brief.	CO3	Understand	
	or			
	Explain the biomechanical differences between normal walking and running gait cycles.	CO3	Analyze	
4	What is Tennis Elbow? As per your knowledge, how will you treat and prevent tennis elbow. Give precautionary advice to the patient.	CO1	Apply	
	or			
	What is carrying angle? Explain why carrying angle is more in female than male.	CO1	Analyze	
	Section III			
Application based questions.				**1 x 20 = 20**
5	Analyze the weakness or paralysis of following muscles Trapezius, Serratus Anterior, Rhomboids, deltoid, Supraspinatus, Infraspinatus, Subscapularis, Pectoralis major, lattismus dorsi?	CO1	Analyze	
	or			
	Analyze kinematics and kinetics of knee joint? Apply arthokinematics and explain the biomechanics of locking and unlocking knee joint.	CO1	Apply	

COURSE OUTCOME

At the end of course, candidate will able to

CO1 Analysis different movement in shoulder joint, elbow joint, wrist joint, hip joint, knee joint, ankle and foot joint.

CO2 Understand kinematics and kinetics in vertebral column.

CO3 Differentiate normal and abnormal gait pattern

CO4 Analysis work environment and apply knowledge of biomechanics in planning correction of angle of muscle action.