

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech Mid Semester Exam**

Semester: 6th

Subject Code: (203111383)

Subject Name: (Biomechanics &amp; Rehabilitation Engineering)

Date: (31/01/2024)

Time: (1hr: 30min)

Total Marks: 40

Sr. No.		Marks
Q.1	(A) Five One line Questions	05
	1. What term is used for bending a body part to decrease the angle between two body parts?	
	2. What is the definition of "load" in biomechanics?	
	3. What is the term for a force applied to stretch or lengthen a material?	
	4. What is Strain?	
	5. What is Flexion?	
	(B) Five Fill in the blanks	05
	1. The _____ joint allows a wide range of motion and is found in the shoulder and hip.	
	2. The ability of a muscle to return to its original length after contraction or extension is known as _____.	
	3. As velocity increases, the ability of a muscle to produce force _____.	
	4. Flexion and extension movements primarily occur in the _____ plane.	
	5. When the body is bent forward at the waist, it is in _____ position.	
Q.2	Attempt any four(Short Questions)	12
	(1) What are the differences between Flexion and Extension?	
	(2) A rocket of mass 5000 kg is launched into space with an acceleration of 20 m/s <sup>2</sup> . Determine the force required to achieve this acceleration.	
	(3) What is smart material and Remodeling?	
	(4) Give brief description about <b>Sagittal plane</b> and <b>Coronal plane</b> .	
	(5) If an object has a mass of 5 kg and experiences an acceleration of 2 m/s <sup>2</sup> , what is the net force acting on it?	
Q.3	Attempt any two questions	08
	(1) What are <b>Cartilaginous Joints</b> ?	
	(2) What is <b>Smooth Muscle</b> ?	
	(3) Describe with diagram about <b>Ball and Socket Joints, Pivotal Joints, Hinge Joints</b> .	
Q.4	(A) What are the properties of <b>Skeletal Muscle</b> ?	05
	(B) Describe about <b>Cardiac Muscle</b> .	05
	OR	
	(B) Describe about Stress-Strain Curve.	05