

Reg.No. \_\_\_\_\_



# Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)  
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

## End Semester Examination – Nov/Dec – 2016

Code : **15EI2010**  
Sub. Name : **Fundamentals of biomechanics**

Semester : **2016-17 ODD**  
Duration : **3hrs**  
Max. marks : **100**

### ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	An old man came with a fracture on his bone. As a biomechanist how will you analyze the condition?	CO3	12
	b.	The person had fracture due to loading. In this perspective comment on loading and related mechanical properties of bones	CO3	8
(OR)				
2.	a.	As a biomechanist what are the parameters that has to be considered while designing rehabilitation equipment that will ease walking for an athlete who suffers due to structural malfunctions.	CO3	14
	b.	How are solids and liquids classified in bio-fluid mechanics?	CO1	6
3.	a.	Comment on different medical applications of blood rheology. As a biomechanist how can you relate the significance of blood rheology?	CO2	8
	b.	List the components of blood. Evaluate the case where an individual is deficient of these components	CO2	12
(OR)				
4.	a.	As a biomechanist what are the parameters that has to be considered while designing prosthetic valve	CO2	10
	b.	Comment on Laminar flow of blood in a tube	CO1	10
5.	a.	A person who finds difficulty in walking fails to do a proper STRIDE. As a biomechanist how can you classify the main tasks in STRIDE?	CO3	15
	b.	Explain stance phase and its instances	CO1	5
(OR)				
6.	a.	Differentiate mid swing and terminal swing	CO1	5
	b.	Comment on foot pressure measurements with pedobarograph	CO3	5
	c.	As a biomechanist analyze the use of 4D WATBAK	CO2	5
	d.	Write short notes on function and structure of lumbar spine	CO2	5
7.	a.	A diabetic patient has amputation in one of his leg. The other leg is also facing a serious verge of amputation. In motor neuropathy how can you classify the situation according to the physical changes of his foot?	CO3	13
	b.	The ultimate aim of foot pressure measurement is ulceration. Justify the statement	CO2	7
(OR)				
8.	a.	Comment on the peculiarity of L5/S1 in spine biomechanics	CO1	5
	b.	Write short notes on function and structure of thoracic spine	CO2	5
	c.	Differentiate swing and stance phase	CO1	5
	d.	What are the risk factors involved in a person who have a severe back pain?	CO3	5
<b><u>Compulsory:</u></b>				

9.	a.	Comment on joint kinetics and kinematics	CO2	<b>10</b>
	b.	Analyze biomechanics of hip, loads on hip and hip prosthesis	CO3	<b>10</b>

ALL THE BEST