Name:
Enrolment No:

UPES

End Semester Examination, December 2023

Course: Two wheeler & three wheeler technologies — **Semester: VII**

Program: B.Tech ADE — **Time : 03 hrs.**

Course Code: MEAD4017P — **Max. Marks: 100**

Instructions: All the questions are compulsory.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Describe ride-by-wire technology.	**4**	**CO1**
Q 2	Describe the function of banking angle.	**4**	**CO1**
Q 3	Describe the phenomenon of "violation of right of way".	**4**	**CO1**
Q 4	Discuss the various types of fairings and their applications.	**4**	**CO1**
Q 5	Discuss the application of damper.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Discuss all the arrangements of parallel twin engines.	**10**	**CO2**
Q 7	Elaborate the mechanism of the rear swing arm with a schematic diagram. OR Discuss the pushrod mechanism with a schematic diagram, also mention its merit and demerits.	**10**	**CO2**
Q 8	Elaborate the working mechanism of ABS with a suitable diagram/process flow chart.	**10**	**CO2**
Q 9	Discuss the various causes of misfires in IC engines.	**10**	**CO2**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	For the following models of two wheelers, rider dimension is same i.e. Height is 6 Ft and inseam is 32 inch. Plot the comparison table **among any 8 models**, according to rider 's comfort?	**20**	**CO3**

1987 Honda Rebel 450

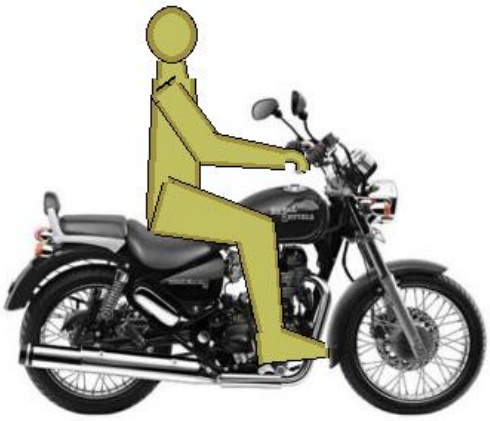
Calculated seat height: 29.0"
Forward lean: 0°
Knee angle: 94° (smaller number means more bent)
Hip angle: 68° (smaller number means more crouched)

2011 Hero Karizma ZMR

Calculated seat height: 31.8"
Forward lean: 7°
Knee angle: 82° (smaller number means more bent)
Hip angle: 86° (smaller number means more crouched)

2012 Triumph Tiger 1050

Calculated seat height: 33.2"
Forward lean: 0°
Knee angle: 78° (smaller number means more bent)
Hip angle: 94° (smaller number means more crouched)

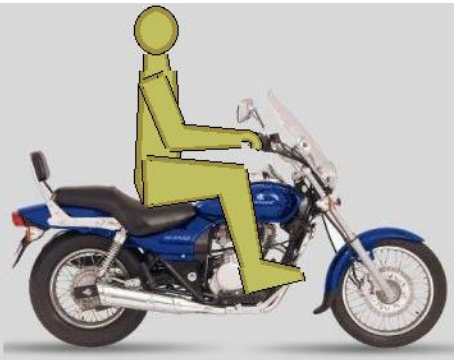


2013 Royal Enfield Thunderbird

Calculated seat height: 30.3"
Forward lean: 0°
Knee angle: 112° (smaller number means more bent)
Hip angle: 88° (smaller number means more crouched)

2016 Honda Gold Wing F6B

Calculated seat height: 28.2"
Forward lean: 0°
Knee angle: 89° (smaller number means more bent)
Hip angle: 79° (smaller number means more crouched)



2011 Bajaj Avenger 220

Calculated seat height: 28.0"
Forward lean: 0°
Knee angle: 101° (smaller number means more bent)
Hip angle: 73° (smaller number means more crouched)

	 2012 Bajaj Pulsar 150 Calculated seat height: 31.0" Forward lean: 2° Knee angle: 79° (smaller number means more bent) Hip angle: 82° (smaller number means more crouched)  2013 Hero Hunk Calculated seat height: 31.4" Forward lean: 7° Knee angle: 83° (smaller number means more bent) Hip angle: 83° (smaller number means more crouched)  2013 TVS Apache RTR-160 Calculated seat height: 32.4" Forward lean: 12° Knee angle: 78° (smaller number means more bent) Hip angle: 80° (smaller number means more crouched)  2011 Yamaha Fazer8 Calculated seat height: 32.6" Forward lean: 14° Knee angle: 75° (smaller number means more bent) Hip angle: 79° (smaller number means more crouched)		
Q 11	Analyze & discuss various engine inclination positions and their performance. OR Discuss liquid cooled and oil cooled engine technologies with suitable diagram.	**20**	**CO3**